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Areawide Waste Treatment and Water Quality Management Planning. Appendix A-2. Municipal Wastewater Needs and Capital Scheduling

Greater Egypt Regional Planning and Development Commission, Carbondale, IL

Prepared for

Environmental Protection Agency, Chicago, IL

Nov 78

Areawide Waste Treatment and Water Quality Management Planning

PB 297027

Municipal Wastewater Needs and Capital Scheduling

Appendix A-2

Franklin, Gallatin, Hamilton, Hardin,
Jackson, Jefferson, Perry, Pope, Saline,
and Williamson Counties, Illinois

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Areawide Waste Treatment and Water Quality Management Planning

Municipal Wastewater Needs and Capital Scheduling

Appendix A-2

14

Franklin, Gallatin, Hamilton, Hardin, Jackson, Jefferson, Perry, Pope, Saline, and Williamson Counties, Illinois

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The Municipal Wastewater Needs and Capital Scheduling is Appendix A-2 of the Areawide Waste Treatment and Water Quality Management Plan for Southern Illinois. The Report was prepared under Section 208 of the Water Pollution Control Act, as amended. The report addresses the needs of municipalities as they relate to sewage collection, transport and treatment. Facility planning areas are defined for the Southern Illinois 208 area, priorities and capital scheduling are established, financing arrangements are analyzed and implementation strategies discussed.

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November 1978

Michael P. Mauzy
Acting Director
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Mr. Mauzy:

The Commission is pleased to transmit Appendix A-2, Municipal Wastewater Needs and Capital Scheduling of the 208 Areawide Waste Treatment and Water Quality Management Plan for Southern Illinois. The plan and this document cover the ten Illinois Counties of Franklin, Gallatin, Hamilton, Hardin, Jackson, Jefferson, Perry, Pope, Saline, and Williamson.

This technical report is an integral part of the Southern Illinois Water Quality Management Plan that is designated to meet the contract requirements of Federal Grant Number P005225-01 under the U. S. Water Pollution Control Act Amendments of 1972, as administered by the United States Environmental Protection Agency.

We trust this submittal of this report, as well as the others comprising the plan, will provide the basis for certification of the plan and continued designation of this area.

Sincerely,

A. S. Kirkikis

A. S. Kirkikis
Executive Director

ASK:db

ACKNOWLEDGMENTS

The Greater Egypt Regional Planning and Development Commission and the Southeastern Illinois Regional Planning and Development Commission wishes to acknowledge the

United States Environmental Protection Agency

for financial assistance in the preparation of this report.

The Regional Commissions express their appreciation to the Illinois Environmental Protection Agency for their assistance and cooperation during the initial planning program.

In addition, the Regional Commissions would like to thank the members of the Technical and Policy Advisory Committees to the program; the Federal and State Agencies; and the many public officials and citizens too numerous to mention who have offered information and suggestions during the initial phase of the planning program.

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INTRODUCTION

The objective of the Federal Water Pollution Control Act of 1972 (PL 92-500) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. In order to achieve this objective, the following goals and policies are set:

1. The discharge of pollutants into the navigable water be eliminated by 1985;

2. Wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;

3. The discharge of toxic pollutants in toxic amounts be prohibited;

4. Federal financial assistance be provided to construct publicly owned waste treatment works;

5. Areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each state; and

6. A major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and oceans.

Title II, Section 201, of the Act authorized the U.S. EPA to issue grants to any state, municipality, or inter-municipal or interstate agency for construction of publicly owned treatment works. The 75% grant is offered in three steps: Step I - facilities planning; Step II - design; and Step III - construction. As a result of the 1977 Clean Water Act, the innovative technologies for wastewater collection and/or treatment would be eligible for 85% U.S.E.P.A. grants. The objective of 208 planning is to meet the 1983 water quality goals by developing a plan as described in Section 208 (b) (2) of the Act. Through Section 208 designation, local areas are provided a unique opportunity to meet 1983 water quality goals by planning and managing a comprehensive pollution control program for municipal, industrial, and other point and non-point sources of pollution. This report is limited to municipal waste treatment system needs for meeting the 1983 goal and facilities required over a twenty-year planning period. The U.S. EPA recognizes the close relationship between 201 and 208 plans. Facilities planning and areawide planning were coordinated closely, to avoid unnecessary fragmentation and duplication, potential conflicts, and excessive planning costs. Data and analytical information were shared. The on-going 201 plans are not dependent upon the 208 planning process. Facilities plans that are completed and approved will continue through the Step II and III stages after timely review and comment by the 208 planning agency. After approval of the areawide plan (208), the new grants for 201 plans will be made only to the management agencies designated in the 208 plan. New facilities planning (201) will be consistent with the approved 208 plan.

This report addresses the 208 work elements as described in CFR Vol. 40, No. 230, 131-11(h). Under the title, "Municipal Waste Treatment System Needs." It also partly fulfills the requirements of Section 208 (b) (2) (A), (B), (D), and (E) of the Federal Water Pollution Control Act Amendment of 1972 (PL 92-500). This states that:

> (2) Any plan prepared under such process shall include, but not be limited to--
>
> (A) the identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs of an area over a twenty-year period, annually updated (including an analysis of alternative waste treatment systems), including any requirements for the acquisition of land for treatment purposes; the necessary wastewater collection and urban storm water runoff systems; and a program to provide the necessary financial arrangements for the development of such treatment works;
>
> (B) the establishment of construction priorities for such treatment works and time schedules for the initiation and completion of all treatment works;
>
> (D) the identification of those agencies necessary to construct, operate, and maintain all facilities required by the plan and otherwise to carry out the plan;
>
> (E) the identification of the measures necessary to carry out the plan (including financing), the period of time necessary to carry out the plan, the costs of carrying out the plan within such time, and the economical, social, environmental impact of carrying out the plan within such time.

The part (C) of the plan (deleted here) is related to the establishment of a regulatory program. In the 208 area, the Illinois Environmental Protection agency is the regulatory agency which enforces the state water quality regulations, implements the waste treatment requirements of Section 201, and manages the NPDES permit program.

This report is divided into seven chapters, which present the general environment of the region's municipalities, planning processes adopted to determine the waste treatment needs, needs of the municipalities, financial analysis, construction priorities and capital scheduling, implementation strategies, and the conclusion and recommendations. Appendix A of the report contains the data sheets of all (81) municipalities. These sheets summarize the municipal wastewater collection and treatment facilities, financial data, user's charges, and other information important in determining the needs of each municipality of the Southern Illinois 208 area.

Chapter 1

ENVIRONMENTAL BACKGROUND

Physical Characteristics

Climate and Precipitation

The area has a climate typical of the mid-Mississippi River region. Winters are relatively mild, while summers are commonly warm to hot and usually humid, with occasional temperatures of 100° F. or higher. The average temperature is 59° F., with extremes of 114° F to -20°F recorded. July is the warmest month and January is the coldest, with mean monthly temperatures equivalent to 78° F. and 36° F., respectively. Prevailing wind patterns are from the southwest to the northeast during the spring and summer, and from the northwest to southeast during the winter.

Southern Illinois is subject to intense local rainstorms of short duration, usually in the summer, with widespread storms of lesser intensity throughout the rest of the year. The more notable storms of record are the latter type and have been responsible for the major flooding in the region. Average annual rainfall is about 42 inches, with extremes of 29 to 65 inches recorded. Local snowfall averages some 13 inches annually. Distribution of precipitation is relatively uniform throughout the year, with the driest month being February and the wettest month being May. Much of the total rainfall, however, is lost because of evaporation, transpiration, rapid upland runoff rate, and the limited capacity of the surface soils to retain infiltration as groundwater.

Topography

The topography of the region is characterized by gently undulating hills in the north and west; low relief, wide valleys and well developed upland drainage systems in the east; and more rugged, well-defined hills and valleys in the south.

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Soils

The soils of the area consist of relatively impervious clays and silts, interlaced with layers of very fine sands. A large percentage of the area's soil is not suitable for subsurface waste disposal. Bedrock, consisting primarily of sandstone underlain by shale, is approximately sixty feet below the surface in the northern parts. Rock outcrops are common in the southern portions of the study area. A detailed discussion on the area's soils is presented in the agriculture report of the 208 project.

Geology

The geologic units of Illinois fit into four major divisions: precambrian basement rock; consolidated sedimentary bedrock; a variably thick blanket of glacial drift; and a mantle cover of loess. The sedimentary rocks are extensively exposed in Southern Illinois adjacent to the Mississippi and Ohio Rivers. Glacial deposits cover 90 percent of the state. The thickness of glacial drift in Illinois varies from zero to approximately 600 feet, with the average being about 100 feet; Southern Illinois is an area of thin drift.

The bedrock geology in the Ohio River Basin includes formation of Devonian, Mississippian, Pennsylvanian, Cretaceous, and Tertiary systems. Mineable deposits of coal and fluorspar are found in the region close to the surface bedrock exposures. The bedrock is predominately covered by a mantle of unconsolidated sediments of the Quarternary system.

Coal deposits underlie most of the watershed area of the Saline River and Big Muddy River basins. While the coal deposits extend over most of Illinois and Kentucky and part of Indiana, the coal in this basin can be extracted at less cost than in most areas.

Fluorspar is mined in Hardin and Pope Counties and has been a major source of domestic supply in the nation. However, the importance of fluorspar is declining, because of increased imports from foreign sources.

Drainage

The 208 area is covered by the Big Muddy River and Saline River Basins, which flow into the Mississippi River and Ohio River, respectively. The Big Muddy River Basin has a drainage area of 2,387 square miles. The watershed is characterized by hilly upland topography and broad, flat lowland along the principal streams. Much of the upstream floodplain area is timbered, although farms are located in the cleared acres of the valley. The total length of the Big Muddy River is 160 miles, and the total fall of the river is about 310 feet, from headwater to mouth. The stream's slope varies from nearly 10 feet/mile near the source to about 0-2 feet/mile near the mouth. Channel capacity varies from about 1,000 cfs at Benton to about 5,000 cfs at Murphysboro. The river banks are fairly uniform. Backwaters from the Mississippi River at times extend to the vicinity of Plumfield, and the lower 43 miles of the river may be affected by backwater as much as 50 percent of the time.

The Saline River Basin has a total drainage area of 1,177 square miles. The physical characteristics are similar to the Big Muddy River Basin, with the exception of the relatively higher hills located within the Eagle Creek watershed. The main stem of the Saline River has a length of about 28 miles and is further extended upstream into three branches. The Saline River and parts of major tributaries have been channelized for flood control and navigation purposes. Backwaters from the Ohio River frequently extend many miles into the Saline River. At extremely high stages, the waters are diverted from the Wabash River to the Saline River just below the village of Junction, in Gallatin County.

Land Use

In Southern Illinois, agriculture and mining are the prime uses of land. The majority of the population resides in 81 municipalities, but roadside development and development in lake watersheds are also very common. In the southern parts of the region, Shawnee National Forest (U.S. Dept. of Agriculture) and Crab Orchard Wildlife Refuge (U.S. Dept. of Interior) areas are located. The regional survey indicates that the urban category is increasing. Total land area in the ten counties is 2,687,666 acres; of this, 76,332 (2.84%) acres are defined as urban or built-up. None of the ten counties of the 208 area have land use control programs; therefore, roadside development and/or unplanned development occurs, which eventually leads to water pollution problems. A number of the municipalities have zoning ordinances and they can exercise such ordinances within 1½ miles outside the corporate limits.

The facilities planning areas (FPA's) are outlined by IEPA which generally include most of the area within the 1½ mile zoning limits of the municipalities. In the 208 area, there are 64 such FPA's. The 208 project's Interim Output outlines the detailed land use (existing and projected) of each FPA. The GERP&DC and SIRP&DC have separate reports on land use planning for ten-county region.

Socio-Economics

Population

The 208 region's 1975 estimated population is 252,000, with about 171,000 residing in municipal areas. The 208 staff has projected growth of the area's population to 292,000, with growth of the municipalities population to 218,000, by 1995. It is estimated that 60% of the area's population are connected to sewer systems; this percentage is projected to about 76% by 1995. The area's population growth centers are located along U.S. Interstate 57 (north-south) and State Highway 13 (east-west).

A large majority of population (approximately 80%) are in the western five counties (Franklin, Jackson, Jefferson, Perry, and Williamson) of the 208 area.

Economy

According to the 1970 Census, the median annual family income of the 208 area was approximately $6,838. The county with the highest median income was Jackson County, with $7,918, and the county with the lowest median income was Pope County, with $5,046. Despite the fact that coal mining is the best known industry in Southern Illinois, the agriculture industry remains important to the region. Since 1960, the region, in keeping with national trends, has experienced a relative decrease in employment in the areas of primary production, namely agriculture and mining. Concurrently, there have been increases in the categories of services, government, and wholesale and retail trade.

Recently published figures from the 1972 Census of Manufacturers are contrasted with 1967 figures compared to the State of Illinois, changes in the manufacturing sector have been favorable in the region. The region, also benefiting economically from tourism and recreation, is gifted with beautiful scenery, a large number of lakes, and innumerable outdoor recreation spots. The existence and growth of Southern Illinois University in Carbondale and the development of Interstate Highways (I-57, I-64, I-24) have played an important role in the economy of the region.

General Water Quality Characteristics

In the Southern Illinois 208 area, the water quality varies from stream to stream and from location to location, depending on the man-made activities in the vicinity of the watershed. Those streams which possess good quality water have very little man-made activity; furthermore, a large percentage of land in these watersheds is forestland. The area's lakes also have relatively good quality water; they are the prime source of water supply and are used for recreational purposes. The most severe impact on regional waters is that of the coal mining activity in the portions of the Big Muddy River and Saline River Basins. The acid mine drainage has degraded the water quality of a significant percent of streams in this region. Agriculture, feedlot runoff, municipal wastewater treatment plant discharges, and runoff from malfunctioning septic tank systems are also water pollution sources, and their impact on regional waters is widespread. The impact assessment of these pollution sources has been evaluated in various documents of the 208 project.

State Water Quality Standards

The Illinois Pollution Control Board (IPCB) has established the water quality standards for the state of Illinois. The standards are stated in Chapter 3 of IPCB regulations. Illinois EPA has proposed to change standards for several water quality parameters such as fecal coli, iron, etc.

State Effluent Standards

The Illinois Pollution Control Board has also established the effluent criteria for wastewater treatment facilities. These effluent standards vary, depending on the following conditions:

1. Population of the service area;
2. Type of treatment facilities;
3. Characteristics of the stream;

4. Downstream water uses (water supply, reservoir).

The criteria concerning the effluent standards are stated in Chapter 3 of the IPCB regulations.

NPDES Permit

The Illinois Environmental Protection Agency issues NPDES permits to all the dischargers (flow equivalent to 15 P.E. or more) in the State. The permits establish variance from the effluent standard and limitation. Permit holders must meet specific permit requirements. The majority of existing municipal wastewater treatment facilities cannot comply with the state effluent standards due to primary treatment facility characteristics, inefficient treatment plants, or deteriorating sewer systems; therefore, they have been receiving variance through the NPDES permit process.

Chapter 2

FACILITY PLANNING AREAS

The Illinois Environmental Protection Agency has designated 65 facility planning areas in the 208 project area. Two of the FPA's do not include a municipality, and twelve FPA's include more than one municipality. The facility planning areas are listed in Table 1. Under section 35.917-2 of U.S. EPA regulations 40 CFR 35 Subpart B, the State designated these FPA's as a preliminary basis for planning the boundaries of each area in the State for which municipal waste treatment facilities must be planned or where the need for such facilities should be evaluated. Boundaries were determined to assure that cost savings and environmental gains from interconnection of sewage systems and their collective management will be given appropriate attention. Facilities planning area maps are included in the Interim Report of the 208 project. The 201 facilities plans or municipal needs analysis studies for all FPA's except three (DuQuoin, New Haven, and Rend Lake West) FPA's have been completed or are in the process. The 201 facilities plans are U.S. EPA-funded projects for utilizing federal funds (75%) under Section 201 of the Act for municipal wastewater collection and/or treatment construction works. The 201 studies were not available for several municipalities, therefore, Illinois EPA funded 100% municipal needs analysis (MNA) studies. The FPA's included in the MNA study were those which contain construction grant applicants with a FY 76 priority number less than 600 (600-1500+) and less than 1,000 population; and those which do not contain a grant applicant regardless of population size. The Greater Egypt Regional Planning and Development Commission conducted these MNA studies for 26 municipalities, with the communities' consulting engineers.

Municipal Wastewater Studies

201 Facility Planning

Facility planning consists of the plans and studies prerequisite to the awarding of grant assistance for detailed design and construction of publicly owned treatment works. The facility plan must contain the following elements:

1. Description of the planning area;

2. Selection of the service area;

3. Selection of overall treatment systems, including location, capacity, and configuration of all facilities; treatment levels and preliminary identification of type of treatment; and method of disposal of residual waste;

4. Analysis supporting the selection in 2 and 3, based on identification, evaluation, and cost-effective comparison of alternatives;

5. Preliminary designs and studies related to the selected waste water treatment systems, including sewer evaluation surveys, surface and sub-surface investigation of sites for proposed facilities, preliminary design, and detailed cost-effectiveness assessment, as well as other requirements set forth in Section 25.917-1 of the Title II regulations.

In the 208 area, about 36 facility planning reports have been completed or are in the process.

Municipal Needs Analysis

The municipal wastewater planning needs studies cover all the elements of 201 except sewer evaluation surveys. In addition, the MNA's address the following issues:

1. Evaluation of existing waste disposal systems of unsewered municipalities, such as septic tank systems with documentation of soils, problem identification, lot sizes, health department survey, etc.;

2. Cost-effective analysis of non-traditional systems including pressure sewer, septic tank - recirculation sand filter, septic tank - buried sand filter, septic tank - mound system, etc.;

3. Financial analysis and user's charges of the proposed wastewater facilities.

These issues must be considered to meet U.S. EPA requirements on funding of sewage collection system projects. Although the MNA studies are comprehensive, 201 studies will be required prior to federal grants for wastewater collection and treatment systems. The Commission has recently completed the municipal needs analysis studies of the following 25 facility planning areas: Ava, Bell Prairie City, Belle Rive, Broughton, Campbell Hill, Colp, Cutler, Eddyville, Equality, Golconda, Gorham, Grand Tower, Hamletsburg, Hanaford, Junction, Macedonia, Makanda, Murphysboro, Nason, Omaha, Pittsburg, Ridgway, Stonefort, Vergennes, and West Frankfort (including the village of Orient).

Wastewater Problem Assessment

One of the primary concerns of the 208 project was to evaulate the needs of municipal areas for wastewater disposal. Improper disposal or untreated wastes create not only water pollution problems but also potential health hazards to the community. The 201 and MNA studies analyzed the problems which exist in the planning areas and propose the alternatives to control such water pollution. To present the general assessment of the area, all the municipalities are divided into two groups: (1) sewered municipalities; and (2) unsewered municipalities. The following assessment is based on the available studies.

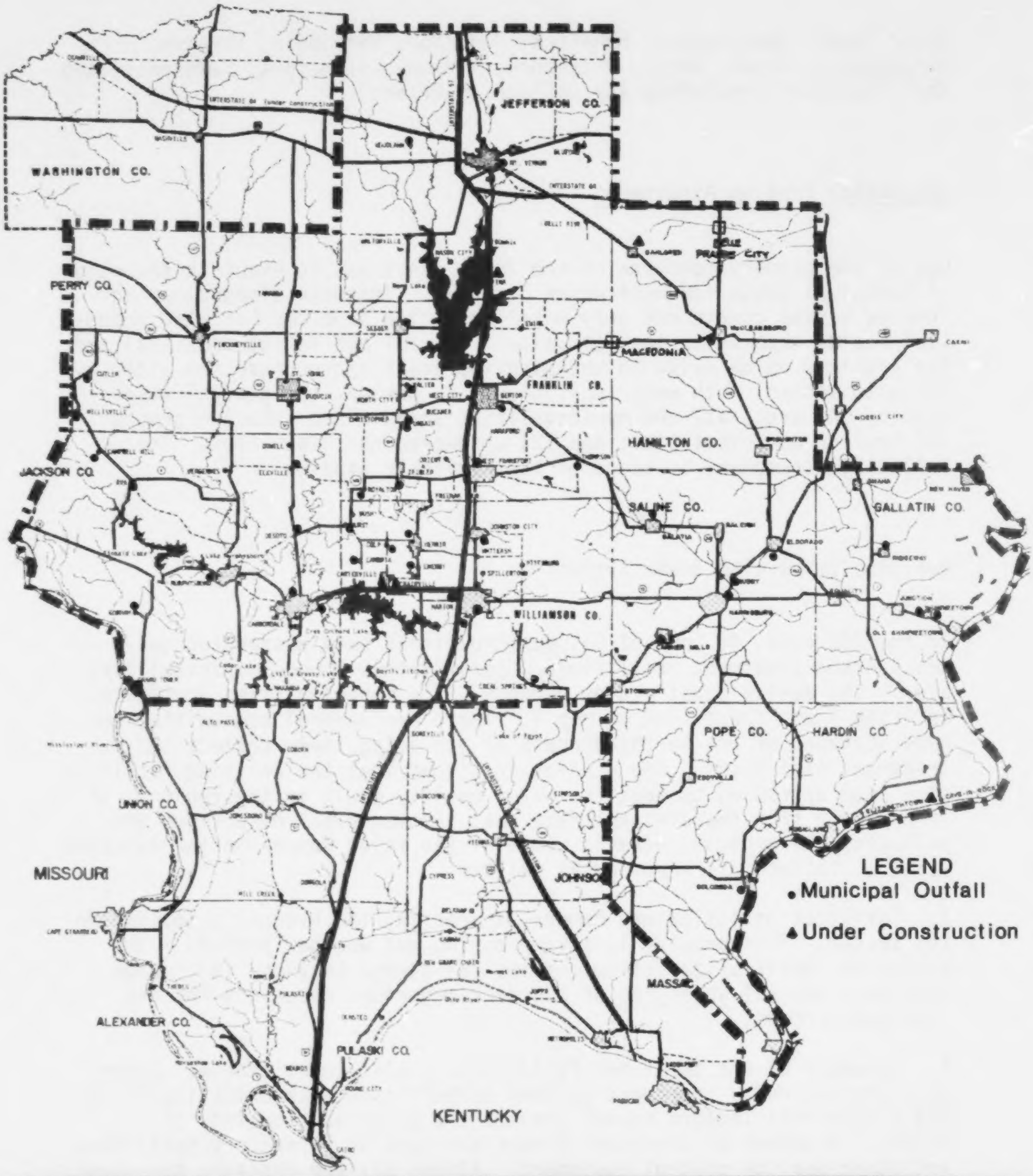
Municipalities with Sewer Systems

In the 208 area, 46 (out of 81) municipalities have wastewater collection and treatment facilities. Approximately 5 more municipalities are in the design/construction process. The municipalities are listed in Table 1 and identified on map 1. There are several communities who have upgraded or are in the process of upgrading their collection/treatment facilities. The studies concluded that the existing facilities need upgrading to meet the water quality goals in the region. It is apparent from the effluent data that the municipal discharges are polluting the regional waters. Some of the major causes of the existing systems' failure are reported as follows:

1. Infiltration/inflow are common, increasing the hydraulic loading on the system. This problem is severe during wet weather periods. The excessive infiltration/inflow creates (a) sewage backups, (b) sewage bypasses; and (c) upsetting of the microorganisms necessary for the treatment process.

2. Adequacy of the treatment facilities is also questionable. Deteriorating secondary treatment systems (Imhoff tank with trickling filter) and single cell lagoons cannot produce the acceptable quality of effluent. A number of treatment plants are lacking laboratory facilities and other quality control equipment. Almost all the existing treatment facilities need to be replaced or need extensive rehabilitation to meet 1983 water quality goals.

MUNICIPAL OUTFALLS



WASHINGTON CO.
JEFFERSON CO.
PERRY CO.
FRANKLIN CO.
HAMILTON CO.
MACEDONIA
BELLE PRAIRIE CITY
JACKSON CO.
SALINE CO.
GALLATIN CO.
WILLIAMSON CO.
POPE CO.
HARDIN CO.
UNION CO.
MISSOURI
JOHNSON
MASSAC
ALEXANDER CO.
PULASKI CO.
KENTUCKY
LEGEND
● Municipal Outfall
▲ Under Construction

FIGURE 1

NORTH

scale in miles

The preparation of this map was financially aided through Federal Grant No. P005225-01 through the U.S. Environmental Protection Agency under the Water Polluti Control Act Amendments of

3. Operation and maintenance of the facilities may be one of the reasons for poor effluent quality. An operator's training/education program and regulatory action may fill the voids, in cases where it is determined that the facility has the technical capability to meet the effluent criteria. It should be noted that the majority of existing treatment facilities do not have such capabilities.

Municipalities Without Sewer Systems

Unsewered municipalities of the region are dependent on septic tank systems. It is estimated that over 70% of these systems are malfunctioning. These malfunctioning systems not only are a nuisance, but also create water pollution and health hazard problems in the communities. The population range of such municipalities is from 52 (Belle Prairie City) to 606 (New Haven). The county health departments have identified the following problems in the unsewered municipal areas:

- Sink drain discharges;
- Automatic dishwasher discharge lines;
- Open discharge from septic tanks;
- Bleeding seepage fields (laterals);
- Sewage discharge into old wells, cisterns, or pits;
- Surface privies (other than sanitary pit privies).

To some degree, problems vary from community to community, depending on the natural characteristics of the community, and on design, construction, and maintenance of the waste disposal systems. The following factors may be responsible for septic system failures in the unsewered community:

1. Natural factors
    - Low permeable or tight soils;
    - Shallow bedrock or high water table;
    - Poor drainage and/or flooding;
2. Human factors
    - Small residential lot sizes;
    - Improper design, construction, and maintenance of the system.

Although house-to-house surveys not required in the MNA studies, there generally public expressions of concern about malfunctioning waste disposal facilities in the communities. County health departments and state public health departments which are responsible for private waste disposal systems, are also aware of these problems. In their opinion, a centralized collection system is the best solution for unsewered municipalities of the 208 area.

Planning Considerations

In order to evaluate the municipal wastewater needs for 26 municipalities (25 FPA's), the Commission staff and the consulting engineers of the communities considered several alternatives which could fulfill the contract requirements. The U.S. EPA policy memorandum (June 21, 1977) on funding of sewage collection system projects was used as a guideline for evaulating the needs for unsewered communities. Two basic elements of the policy were:

1. Substantial human habitation;
2. Cost-effectiveness.

If a centralized collection system was proposed for unsewered communities, it was determined that the proposed system would meet all the criteria established for federal grant eligibility. The following points were taken into account, in determining the needs of those 26 communities which had not had prior studies and which were not funded through 201 projects.

Facilities Planning Area Review

Existing and projected land use in the FPA's were identified on 1"=2 mile maps. The underground mining activity (if applicable) was outlined on the map, to help in the treatment plant site selection process. Adjustments in the FPA boundaries were also considered. In most cases, the FPA's boundaries are within 1½ miles outside the corporate limits. Service areas (existing or proposed and projected) were also presented on the map.

Demographic Data

Populations were projected for a 20-year planning period, with 5-year intervals, for each municipality and facility planning area. The other data presented in the reports were assessed valuation, local taxes, bond indebtedness, per capita/family income, employment, major industries or businesses, and the community's potential growth. The data are important for analyzing the community's financial capability of constructing, operating, and maintaining the proposed wastewater facilities.

Existing Municipal Services

Existing water supply systems and waste disposal systems were evaluated, to determine the management capabilities of the municipalities, as well as problems related with the systems. The quality of service and service charges were also discussed. In cases where municipalities are unsewered, health department surveys or windshield surveys were used to analyze the waste disposal systems. To reinforce the survey, other data such as soils classification, percolation rate, average lot size in the area, etc. were provided. In cases where a centralized sewage system existed, effluent data, general sewer condition, year of installation of the system, treatment plant description and its capacity, and other necessary information were documented.

Sewerage Facilities Alternatives

In order to accomplish the communities' wastewater needs, various alternatives were explored. The following strategies were adopted:

1. For sewered communities, the alternatives considered were: upgrading existing facilities; construction of new treatment facilities (biological, physical, chemical processes); land treatment; infiltration/inflow reduction; operational improvement through regular maintenance and laboratory; and regionalization potential.

2. For unsewered communities, several traditional and non-traditional systems were considered for wastewater disposal. Under the non-traditional system; rehabilitation of existing septic tank systems; septic tank - buried sand filter; septic tank - mound system; small gravity sewer; and pressure sewer systems were evaluated. Although mound systems are not considered technically feasible for most of the unsewered communities, due to the small lot sizes, this sytem was included in the alternatives evaluation as a result of an IEPA direction. Regionalization potential (pumping sewage to existing wastewater treatment facilities) and publicly owned septic system services were also analyzed.

The cost analysis (capital cost, and operation and maintenance costs) of all the alternatives is presented in detail, and comparative total average annual equivalent costs were estimated. The system selected was that which was cost-effective.

Environmental Assessment

Environmental assessments of each alternative, including no action, were analyzed. Impact on water and air quality, land availability, energy needs, maintenance requirements, and public acceptability are addressed in the assessment. Health-related problems in unsewered communities were documented, based on health department surveys.

Financial Arrangement

All studies recommended that 75% of the project costs will be financed through state or federal grants. The community will finance the remaining 25% capital cost and operational and maintenance cost. The following community financial alternatives were suggested:

1. $150 to $250 tap-on fee will be charged for unsewered communities;

2. A significant proportion of the local share of the capital costs may be financed through Farmers Home Administration loans or 50% grant and 50% loan;

3. The community may issue revenue bonds (estimated 7% interest rate for 30 years) to finance the system.

Based on various financial arrangements and overhead and management (O&M) costs, the average annual equivalent costs of the facilities were determined. Finally, the approximate user's charges ($/month/connection) were estimated, to meet the capital recovery and operation and maintenance costs of the system. In cases where the communities have existing sewer systems, extra annual costs were determined, and the sewer service charges were adjusted to cover the upgrading/rehabilitating work.

Chapter 3

MUNICIPAL WASTEWATER TREATMENT FACILITIES

The 81 municipalities of the 208 area have been divided into three categories, for the purpose of analyzing their needs. These categories are based on the status of facility planning studies, and are as follows:

A. Those 26 municipalities which were studied under the MNA program by the Commission. Within this category, approximately 16 communities are unsewered and the remainder (10) have collection/treatment facilities.

B. Approximately 14 facility plans (201's), (i.e., 19 municipalities) are included in this category. These studies, recently completed, present the needs of [illegible] facility planning areas.

C. The other municipalities are included in the third group because
  1. The 201 studies are in process;
  2. The 201 reports are approved, and the projects are under construction; or
  3. The municipality does not have a study.

Only categories A and B will be discussed in detail in this report. Information regarding other municipalities is compiled in the data sheets in appendix A.

Municipal Needs Analysis

Municipal needs analysis studies were designed to evaluate the needs of the communities. In no way will these studies replace the 201 Step I requirement for the federal grant for water pollution control project. An entirely different approach, based on new Federal/State guidelines, was used to correct the wastewater problems, especially in unsewered communities where non-traditional technologies were utilized as possible corrective measures. Non-traditional alternatives were also considered in the unsewered developed sections of existing sewered communities. All the alternatives were assumed to meet the effluent criteria. The alternatives, their design, population, and costs for 26 municipalities are presented in Table 2. Sixteen municipalities in Table 2 do not have a sewer system, and the other municipalities currently employ centralized gravity sewer systems and treatment facilities. To resolve the existing wastewater problem in the municipalities, the alternatives may be classified into two major groups: traditional systems and non-traditional systems.

Traditional Systems

Traditional systems, utilizing gravity sewer systems and treatment plants, are the simplest and most common approach for waste disposal with minimum operational and maintenance requirements. These may not be the cheapest alternative, but engineers feel comfortable with them, due to the historical reliability of such facilities. Traditionally, this type of facility has been the preference of unsewered municipalities of the region. Even if the non-traditional systems are cost effective, an extensive public education/information program will be required to implement the non-traditional alternate. For those communities which already have centralized collection systems, the abandonment of the systems is not cost-effective; therefore, upgrading of the existing facilities is the only viable alternative. Urban growth areas outside the corporate limits, but within the Facility Planning Area (FPA), present legal obstructions, as in the cases of Murphysboro and West Frankfort. The sewer systems and hook ups with existing treatment facilities are generally cost-effective. Furthermore, the population density in these areas (e.g., Harrison, Pershing, and South Highway 37) meet the federal requirements for sewer system construction grants. These areas do not appear to be eligible for federal grants unless they are annexed by existing municipalities or create sanitary districts which can assume their wastewater system responsiblities. Most of the recommended facilities for unsewered communities will have centralized sewer systems and 3-cell lagoons with submerged sand filters for wastewater treatment. The capital cost and operation and maintenance costs of the alternatives are presented in Table 2. In several cases the estimated operation and maintenance costs of the systems are lower than in others. To insure the continuation of proper maintenance and operation of the systems, it is extremely important that these costs should be reviewed carefully prior to the approval of these projects. One of the common reasons of poor effluent quality from a municipal wastewater treatment plant is the lack of proper operation and maintenance of the system.

Non-Traditional Systems

Several non-traditional systems have been evaluated for unsewered municipalities and unsewered developed areas outside sewered municipalities.

They were as follows:

1. On-Site Disposal System
   a. Rehabilitation of existing septic tank system
   b. Septic tank with mound system
   c. Septic tank - recirculation or buried sand filter
   d. Publicly operated septic tank cleaning service
2. Collection System
   a. Pressure sewer - grinder pump
   b. Pressure sewer - septic tank effluent pump (STEP system)
   c. Small gravity sewer
3. Wastewater Treatment
   a. Land application system - irrigation method
   b. Land application system - overland flow method

The non-traditional alternatives and their costs are in Table 2. It is estimated that the land application system (irrigation method) is not a cost effective alternative for the region. In only one case (Eddyville) was overland flow land application method considered and found to be cost effective; however, the community's consultant did not recommend it. Several problems are related to the non-traditional, on-site disposal systems. A detailed feasibility study will be required prior to implementation of any of these alternatives. Most of the complications result from lack of public acceptance and effective management. There are two significant factors in the area's unsewered municipalities which decrease the reliability of on-site disposal alternatives. They are as follows:

1. Lot size: Most residential lot sizes are too small to construct mound systems or other modified subsurface waste disposal systems. The population density precludes surface discharges from recirculation sand filters or individual package units in limited space. Also such systems can create health hazards and water pollution problems if operated within severely constrained space. In general, the average residential lot size is approximately 50' x 100', which is much smaller than the minimum recommended lot size (one household/two acres) by U.S. EPA for sewer construction grants.

2. Natural characteristics: The low permeable soils, shallow bedrock, and other characteristics do not allow the adequate subsurface disposal of wastes with the existing applicable technology.

Table 2 shows that, even with all these drawbacks, the on-site disposal alternatives were considered in the studies. It is obvious from the Table that on-site disposal systems are not cost-effective. According to the county health departments, if a community can afford it, the best solution is a centralized collection system. The public and local government concern with on-site disposal systems represents very low understanding and/or belief in the success of such systems for the 208 area's unsewered municipalities.

Selected Alternatives

The selected alternative systems for each municipality are based on cost effectiveness of the systems as shown in Table 2; except in the case of Eddyville, where the system proposal by the engineer is not cost-effective. Two municipalities did not demonstrate significant (cost-effective) need for upgrading existing septic tank systems. The study recommends regular septic tank cleaning services, which should be managed by the municipality through private contractors, for Macedonia and Stonefort. The public acceptability and village officials' view on this proposal is unknown. In particular, the role of the municipal government, in enforcing or practicing septic tank cleaning services has not been fully discussed. The second important factor is the optimistic assumption that all the existing systems are currently functioning properly, which may not be true. As the recommended management system does not qualify for a federal grant, the individual home owners have to pay 100% of the cost to build (new) or rehabilitate the septic tank system. A thorough investigation of the existing septic systems will be required in order to estimate the exact needs and costs of these municipalities.

Septic tank - mound systems were proposed for Belle Prairie City and Hamletsburg. These proposals are based on cost effectiveness, although the technical reliability is in doubt at this time. It is noted that soils maps indicate that the water tables in the villages are seasonally under two feet in some areas of the villages, and therefore, mounds may not be a workable solution. It is recommended that further investigations into possible utilization of mounds should include verification of Soil Conservation Service data and determination of the extent of time during which the water table remains within two feet of the surface. Furthermore, the management responsibilities of the mound system and the location of mounds serving the cluster of homes have yet to be determined. These MNA studies recommend, for the rest of the municipalities (22), that the sewer systems are not only technically the best solution, but also the cost effective alternatives. The comparison and selection of alternatives are summarized in the table. The details may be found in the data sheet in Aappendix A or in the individual reports prepared by professional consulting engineers for the Illinois Environmental Protection Agency.

The unsewered communities consulting engineers selected the centralized systems on cost-effectiveness and technical feasibility bases. The federal grant share for innovative (on-site) systems was assumed 75% instead of 85%. A revised lower local share may attract many communities to accept on-site systems. Furthermore, due to the lack of existing on-site systems (septic tank, tile field) information in the unsewered areas, the study assumed a 100% failure of the systems, which may not be true. A thorough field investiation may determine that only a certain percentage of the existing wastewater disposal facilities require rehabilitation and/or replacement. Such a determination would substantially reduce the capital cost of the innovative alternative which eventually will make on-site systems more cost-effective. Design, construction, and maintenance of each septic tank system should be analyzed to determine the causes of failure along with other natural factors. In the completed municipal wastewater studies the cost estimated by the consulting engineers are inconsistant. These costs discrepancies should be eliminated (especially for innovative systems), at least on a regional basis for similar systems. The consulting engineers, local government officials, and the citizen should be informed and educated by the I.E.P.A. on innovative systems application and implementation in unsewered communities.

It is recommended that all the area's unsewered communities should be funded for 201 Step I grants. The 201 studies should conduct a detailed field study to evaluate the possibility to implement on-site systems in the study area as an alternative to the proposed centralized sewer system. The study should consider the availability of 85% federal grants for innovative systems and a higher priority ranking on the state list for such systems. If the 201 Step I study determines that on-site systems are feasible (economically and technically) for the unsewered areas, then the said community should implement the on-site alternative to resolve the wastewater disposal problem.

Facilities Plans (201's)

Recently completed facilities plans were reviewed and are summarized in Table 3. These facilities planning studies determine the needs of the communities, although non-traditional approaches were not explored by the consulting engineers as they were in the MNA's.

The capital costs of the proposed projects are very high, as shown in Table 3. In the facilities plans, the consulting engineers recommended sewer system extension to the developed areas within the FPA's. The

Table shows only the final selected systems which proved to be cost effective. It is apparent that a high degree of treatment level will be required in order to meet the state effluent criteria; therefore, a combination of several process units were proposed. The studies concluded that inflow is a common problem in the area's municipalities, and inflow removal programs can substantially decrease the hydraulic loading on treatment plants, thereby reducing the projects' capital costs. In most cases the user's monthly charges were not presented in the reports. The 201 studies recognized the needs of municipalities, as they do not have the capability to process acceptable levels of treatment. The effluent generated through these facilities is in violation of state standards. These 201's have been completed and are available for detailed review.

Non-Structural Controls

Although the effectiveness of the non-structural control measures was not evaluated in the MNA and 201 studies, such measures may significantly mitigate the problems related to the existing septic tank systems. Those measures are essential for the strategy of future control of pollution from individual houses. Municipalities should control the land use pattern within their jurisdictional limits. Sewer service should be available to the residents, and the treatment plant should have enough capacity to meet growth-related needs for a 20-year planning period. Sewer service needs should be analyzed prior to re-zoning and/or annexation. The treatment facilities should be operated and maintained properly to produce a high level of effluent. The improved management programs, such as public information/education operator's training, allocation of adequate funds for operation and maintenance, sewer service planning, etc., are useful tools in point source water pollution control measures. Those areas where centralized collection and treatment facilities are not available immediately may consider the following corrective measures:

1. Water conservation/appliances use: The per capita water consumption is moderate in the 208 area, averaging approximately between 50-75 gallons per day. In a few cases, the consumption rate is as high as 150 gallons per day per person. The consumption rate should be adjusted to the area's soils permeability rate. Limitations on the use of garbage grinders, dishwasher, or other unnecessary, high water-consuming appliances should be determined on an individual basis.

2. Land use planning: All ten counties of the 208 area lack land use ordinances. It may be possible for the counties to pass interim ordinances on minimum lot size for individual homes, dependent upon soil percolation rate, in order to insure the proper disposal of wastes. The U.S. EPA's recommenation of 2 acre/household limit, might be an alternative

conservative approach. The problem areas, based on soil limitations, may be identified; and the urban growth in such areas should be prohibited, or sound waste disposal alternatives be recommended, prior to development. If it is possible, such zoning and land use control ordinances should be enforced for better services through planned growth.

3. Evaluation of publicly owned septic systems or septic cleaning services: A thorough investigation should be made for the implementation of such a program in the 208 area. Several related problems have been identified, such as: (a) municipal/county governments' acceptance of management septic tank systems; (b) public acceptibility; and (c) ultimate disposal of septage. According to the current U.S. EPA policy, only publicly owned septic tank systems are grant eligible; therefore, it is recommended that the possibility of federal grants or loans to individual home owners should be explored. Availability of state or federal funds to individuals may improve the chronic septic system problems in the area.

4. Septic tank cleaning ordinance: As an alternative to publicly owned individual or small system septic tank systems, municipalities and counties may require individuals to pump their septic tanks periodically, and a record of such should be kept for inspection. Counties which do not have septic tank system ordinances should adopt and enforce such ordinances.

Chapter 4

FINANCIAL ANALYSIS

The needs and economics of the communities have been analyzed as part of the Zol facility plans and the municipal needs analyses. After determining the project cost, the fiscal resources for the project should be identified. Whatever the financial arrangements are, the service users are required to pay the operation and maintenance costs, in addition to the community's share of the capital cost, in terms of monthly service charges. Several techniques are used to design sewer service rates for O&M and capital recovery. The following methods are commonly used to determine sewer rates:

1. Flat rate: the charge is a fixed dollar amount per sewer connection per month.

2. Water consumption: the sewer rate may be based on individual water consumption, and the sewer service charge is a fixed percentage of the water supply rate.

3. Separate sewer service charges may be established, which include minimum service charges ($/gallons/month), with the rate increasing with water consumption (unlike most water rates which decrease with increased volume consumption).

Funding Options

There are a number of alternatives available for the financing of wastewater collection/treatment or disposal works. The financial programs may be in the form of grants and/or loans from federal or state agencies, or local finance through public bonds. The various federal, state, and local financial resources, have been analyzed; only those resources which are available to the area's communities are presented at this time. The state/federal funds are not readily available, in most cases, complex regulations and priorities systems deter most local units of government from relying on them. However, such state/federal grants and/or loans are necessary for the area's wastewater construction works, because most communities at this time do not have the financial resources to fully fund such projects.

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Federal Resources

Municipal wastewater collection and treatment construction works are dependent upon federal grants and/or loans. It is not economically feasible to solve the regional wastewater needs without federal assistance. In individual projects, the need for federal funds is estimated from 25% to 100% of the project costs. The following federal agencies may provide financial assistance to the local governments:

U. S. Environmental Protection Agency (U.S. EPA). This is the single most important agency which can provide up to 75% of the grant-eligible project costs. The federal dollars are available pursuant to Section 201 of Public Law 92-500, which authorized the Agency to provide funds for facilities planning, design, and construction phases of water pollution control projects. According to this Act, all municipal wastewater treatment facilities should improve the treatment of waste at least up to the secondary treatment level by 1983. It may be assumed that existing treatment of facilities lacking these levels of treatment would be eligible for U.S. EPA grants up to 75% of the grant eligible costs. The U.S. EPA policy for new sewer construction projects required the applicant to meet two criteria: (a) substantial human habitation; and (b) cost effectiveness (conventional system vs. non-conventional system).

Recent U.S. EPA draft guidelines as a result of the Clean Water Act of 1977, indicated that on-site alternative systems qualify as innovative and/or alternative technology and may qualify, therefore, for 85% grant participation by U.S. EPA. The innovative technologies, such as on-site disposal or treatment methodologies are not required to be wholly cost-effective to be eligible for grant participation. The innovative technologies must fall within 15% of the cost-effective alternative to be eligible for grant participation from U.S. EPA at the 85% funding level.

The formula for distributing funds to the States was made by Congress. State allotments were computed on the basis of the following four factors:

i. 25 percent based on estimated population of the States;
ii. 50 percent, on partial needs of a State for certain categories of facilities (secondary treatment, more stringent treatment where needed to meet water qualify standards, interceptor sewers, and pumping stations);
iii. 25 percent, on total water pollution control needs of a State;
iv. an allotment adjustment to assure that no state receives less than one-third of one percent of the total amounts appropriated.

The U.S. EPA allocated $52,151,000 to Illinois for FY '78 for wastewater collection and treatment works. The Illinois Environmental Protection Agency has developed a priority ranking for each fiscal year. The U.S. EPA grant distribution program follows the state priority list. It was estimated that those communities having priority numbers lower than 600 on FY '77 priority list would receive the U.S. EPA grant within five years.

2. Farmers Home Administration (FmHA). Realistic financial analysis of the unsewered communities concluded that, even if the community receives the maximum 75% federal or state grants, a significant proportion of the 25% local share must be generated through non-local sources, such as the FmHA grant and loan programs. This is particularly there for small unsewered communities. Approximately $5,160,000 in grants and $21,135,000 in loans have been allocated for Illinois for water and/or sewer projects in the rural communities. The FmHA has developed regulations and grant criteria to define a rural community; in summary, all but two municipalities of the 208 area (Carbondale and Murphysboro) are eligible for FmHA grant and/or loan programs. The general policy of the FmHA is to provide grant money to the water projects. In some cases the grants were also allocated to sewer projects, as well. It is important to note that the FmHA grant and/or loan can be used as the local share, along with 75% U.S. EPA grants. Small communities are be eligible to receive loans equal to the community's share (25%) from FmHA, at an interest rate of 5% for 40 years. The possibility of FmHA grants for sewer systems is remote; however several communities appear to be very optimistic about the availability of such assistance.

3. U. S. Department of Housing and Urban Development (HUD). Under the community development block grant program of HUD, public facilities including sewers are grant eligible. The fundamental criterion of the grant is that these services should be provided to low and moderate income residential areas of the community. This grant can only be used for sewer construction, including rehabilitation purposes. It cannot be utilized as a matching funds for other federal programs. The use of the grant is limited to cases where low to moderate income residential areas. It appears that the HUD housing rehabilitation loan program may be utilized to rehabilitate existing septic tank systems on an individual basis, and that individual homeowners are eligible to receive low interest rate loans (3% interest rate for a 20-year period) for septic tank systems if the house is defined as "standard" on HUD scales. The Comprehensive Regional Planning Commissions (GERP&DC and SIRP&DC) have recently completed the regional housing survey pursuant to the HUD §-701 program, which shows that approximately 85% of all houses meet the federal "standard" housing requirements.

4. Economic Development Administration (EDA). The Public Works Economics Development Act, 1965, provides grants for public works and development facilities. The EDA grants are available for providing sewer service, if such services create permanent jobs in the community through industrial/commercial development. The impact on such employment as an existing commercial establishment requires sewer services to maintain its present activities. Indirect impact such as sudden residential growth due to industrial development near the municipal area, requires sewer extension. In both cases, the employment situation is involved; therefore, it may be possible that EDA would sponsor grants for such projects. The EDA grant cannot be used for treatment facilities; nor can it be used as matching funds with a U.S. EPA grant. The EDA grant is not a 100% grant; the grant percentage varies from county to county. Ten percent grant bonus may be adjusted on recommendation of a regional planning commission. Except for Jefferson County (excluding the City of Mt. Vernon), all other counties of the 208 area are qualified for EDA grants. The grant rates are as follows: Franklin County - 60%; Gallatin County - 60%; Hamilton County - 70%; Hardin County - 60%; Jackson County - 60%; Jefferson County - 0%; Perry County - 60%; Pope County - 80%; Saline County - 60%; and Williamson County - 70%. The best utilization of EDA grants is the sewer extension program for commercial/industrial areas. The possibility of these grants in unsewered communities is not promising.

State Resources

Presently the State of Illinois may provide up to 75% grants for designated health hazard areas through annual legislative action. The Illinois Department of Public Health and the Illinois Environmental Protection Agency annually prepare a health hazard grants priority list. In FY '77 the state legislature approved health hazard grants for construction of wastewater collection and treatment facilities for two municipalities (Dowell and Equality) and a water district (Lake of Egypt) within the 208 area. If the General Assembly approves this year's health hazard grant, two more municipalities (Broughton and Pittsburg) would receive state grants. This grant program is on a yearly basis; therefore, the continued availability of these in the future in uncertain. The continuation of the state grant program will be very helpful in resolving the problems in small, unsewered and health hazard designated communities. The state and/or county health departments provide technical assistance to individual waste disposal facilities.

Local Resources

The local resources may be analyzed in two ways: (1) public affordability (sewer service charges) and (2) municipal bonds (revenue bond, General Obligation bonds).

Public affordability: According to the federal government, the user's annual charges for sewer services should not exceed 1% of the annual median family income. To estimate the recommended sewer service charges, the existing and projected per capita income of each municipality was converted to average median family income as shown in Appendix Table 4. The average annual median family income for the 208 area is approximately $6,838, ranging from a high in Jackson County $7,918 and to a low of $5,046 in Pope County. The 1% of median family income for 1974 and 1995 are also presented in the table which may be used as a guide to evaluate the 208 area's public affordability for monthly sewer service charges.

The charges may vary depending on the community's desire to pay for such services. It may be possible that a 1% limit is not realistic, and that it should be increased to approximately 2% of average annual median family income. The user's charges directly affect the public; therefore, it is recommended that public involvement in establishing the rates is essential. The service charges should cover the operation and maintenance cost and bond retirements cost; it should not be used to generate revenue for other projects of the community. Appendix Tables 4 through 6 present financial information on municipalities in the ten-county 208 area. The information on assessed valuation, remaining capacity of general obligation bonds, indebtedness, and debt retired, may be used to determine the financial capability of municipalities for water pollution control projects. The data indicates that a number of municipalities appear to be retiring their debt at an amount less than the established amortization time periods. For these municipalities to incur any additional debt, without outside financial aid, would not appear feasible.

Municipal bonds: A local government seeking financial resources for a project characteristically obtains the first funds through a combination of loans and grants from the federal (or sometimes state) government and through the sale of bonds. After the project is completed, it will over a number of years, gradually, pay off the loans and incurred bonded indebtedness. There are three main types of bonds - general obligation bonds, revenue bonds, and assessment bonds. An attrative feature favoring the sale of municipal bonds is that the earned interest is exempt from most Federal and States income taxes. This tax-free provision means that the interest rate to be paid on borrowed money is substantially less than the cost of financing the same projects with private utility bonds.

General obligation bonds offer the buyer the greatest security and thus sell at lower interest rates. Despite this financial advantage for the seller, it is sometimes advantageous to use another type of bond. Since general obligation bonding capability is limited in Illinois to 7.5 percent of total assessed valuation, there may be a need to conserve bonding capacity. Appendix Table 4 shows the municipalities' assessed valuation and the remaining general obligation bond capacity. Since these bonds must be approved by the voters, usually by a two-thirds majority, rejection at the polls required alternative type of bond will have to be used.

Revenue bonds are payable only from revenues collected from project beneficiaries. They are used when it is inadvisable or impossible to sell general obligation bonds. The distinctive characteristic of revenue bonds is that, instead of being secured by the full faith and credit of the issuer, they are supported only by a pledge of gross or net revenues from the specific enterprise, such as wastewater facilities. The retirement of revenue bonds is directly related to the user's charges. As such the bond ordinance may place significant constrants upon the utilization of revenues from the sewage facilities. The revenue generated through sewer service is used to retire the bonds and cover the O&M cost of the system. Due to low assessed valuation and low family income, the majority of the area's small municipalities may be un-able to finance their share (25% of project cost) through compeptive municipal bonds.

Assessment bonds are backed by liens against specific real property. After the project is constructed, its total cost is apportioned among benefiting property owners proportional to some index of benefit received (area, assessed value, foot frontage, etc.). Upon receiving his bill the individual property owner may either pay immediately or agree to an assessment bond's being sold which he will pay off over the next 10 to 20 years. Refusal to pay on schedule gives the bond owner right to compensation through sale of the property. Assessment bonds are best suited for small projects serving limited area.

Cost Effectiveness

Federal and State guidelines for facilities planning studies requires consideration of several alternatives; and the one selected should be cost effective. It is also in the best interest of the community to maximize the use of public dollars, in such a fashion that the proposed project and its associated total costs are affordable by individuals. Centralized sewage collection and treatment systems were estimated cost effective in most of the studies. However, capital costs of the proposed cost effective facilities were found to be very high, beyond the financial capability of sall municipalities. The only other alternative for such communities is, of course, "no action," which might not be acceptable by local governments, health departments, and water pollution control agencies. Therefore, it is recommended that the management agencies should search for other financial resources in addition to U. S. EPA grants, instead of establishing higher sewer service charges or overlooking the community's wastewater problems.

Summary Municipal Financial Evaluation

It has been determined that the 208 area's communities' financial capabilities are limited. The 25% local share for construction of wastewater collection and treatment facilities may be difficult to finance wholly through local resources.

Where the local share is financed through market rate loans, the user's charges may exceed the suggested proportion of family income. The low family income of specific communities may not support the establishing of high rates for sewer services. Therefore, although the availability of other federal grants is not optimistic, the community should aggressively search for these funds to supplement the communities share.

User's Charges Analyses

The U. S. Environmental Protection Agency awards the 75% grants with the assumption that the community will provide 25% of the project cost. In fact, the community's share is more than 25% because a number of project items are not U.S. EPA grant eligible (not defined in Federal Register; February 11, 1974). The estimated project's cost, the community's share, financial arrangements, and the sewer service charges of MN's and completed 201's are displayed in Appendix Tables 7 and 8. The user's charges range from $3.50/month/connection to $18.00/month/connection, depending on the specific financing arrangements, the community size, and the proposed facilities. The consulting engineers have suggested a single source or combination of several sources to finance the wastewater facilities. They are as follows:

- Sewer hook up charges ($150 to $250 per connection)
- Farmers Home Administration subsidized loan equivalent to the community's share (5% interest rate for 40 years)
- Farmers Home Administration 50% grant and 50% loan, equivalent to the community's share (5% interest rate for 30 years)
- Revenue bonds at 7½% interest rate for a 20 to 30 year period.

The initially presented user's charges are based on financial arangements proposed by the consulting engineer. It is obvious from Appendix B, table 7 that, due to certain assumptions (financing the community's share through 50% FmHA grant and 50% FmHA loan), the user's charges are low; and where this assumption was not made, the user's charges appeared to be high. For comparative purposes, the user's charges were also estimated on the basis of uniform financial arrangements for the studied communities. These rates are estimated on two possible financial alternatives: (1) the community's share may be financed through FmHA loan, at 5% rate for 40 years; and (2), the community's share may be financed through revenue bonds, at 7.5% rate for 30 years. The user's charges for these two financial alternatives are presented in Appendix Tables 7 and 8.

Municipal Financial Needs

The available technologies can fulfill the facilities needs of the communities; the financial needs require equally serious consideration and evaluation. A hasty decision may negatively affect the community's long term growth potential and reduce the credibility of the local government. Therefore, the consultant's financial arrangement should be carefully analyzed to reduce unnecessary financial pressure on the public. Time scheduling provides the better opportunity to the local government official to look for the best available financial resources. In cases where the funds are not available immediately for a centralized sewer system, temporary solutions should be adopted. Another possible alternative for the communities is time-phase construction of sewer systems. The best source of finance for wastewater facilities is U.S. EPA's 75% grant. The feasible alternative for financing small communities' 25% share is through the FmHA grant and loan or loan, whichever is practical. It is recommended that the FmHA grant (at least 50% of the community's share) is the best alternative to financing the community's share in resolving the wastewater problems in unsewered small municipalities (less than 1,000 population) of the 208 area. The Clean Water Act of 1977, P.L. 95-217 (amended Federal Water Pollution Control Act), increased the amount of grant for any eligible treatment works or significant portions utilizing innovative or alternative wastewater treatment processes and techniques to 85% of the construction cost. Increases in federal grants may prove the non-traditional alternatives cost-effective in terms of local share. In such cases, the local share will be lower than presented in this chapter. The relatively large municipalities are able to finance the project through FmHA loans or revenue bonds. Comunities should explore other financial resources (e.g., EDA, HUD, etc.) for sewer extention and/or rehabilitation projects.

Chapter 5

PRIORITIES AND CAPITAL SCHEDULING

Municipal Wastewater Needs Priorities

Priorities have been established for optimizing the allocation of available resources to meet regional wastewater treatment needs. These priorities also guide the capital-time scheduling for implementing the regional facilities plan. The priorities take into account a number of inter-related objectives established for the allocation of resources. The intent of this priority system is to develop a physical facilities construction schedule which will meet the critical existing and future needs of the area recognizing those facilities having the most positive influence on existing water quality. The priorization of facilities needs was limited to treatment plants and interceptors. Those facilities plans which are currently being implemented are included in this priority ranking.

Priorities were determined by analyzing the municipalities with respect to how each met established criteria for the following parameters: scale of facilities required; population growth rates; adequacy of existing facilities; possibilities for improved management; and type of receiving stream. Based on detailed analyses, points were assigned to each municipality. The points were totaled, and the resulting totals were ranked to indicate priorities. The rationale and the assumptions concerning the parameters are described as follows.

Facilities Required

The municipalities were ranked according to their need for facilities required to meet water quality standards and to accomodate existing and estimated 1995 wastewater flows. The facility needs of the municipalities were expressed in population eouivalent (PE), and subsequently ranked. In those municipalities where the existing treatment plants needed expansion to accomodate 1995 wastewater flow, the capacity increment was used to express need. In those municipalities where wastewater collection systems were recommended, estimated 1995 population increments were used to express need.

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In the case of unsewered municipalities where wastewater collection and treatment facilities were recommended, 1995 population projections were used to assess the facilities requirement and to evaluate the community's need in the facility planning area. The following examples of the Hanaford FPA and Hurst FPA established the facilities requirement.

The Village of Hanaford, is an unsewered municipality and its 1995 projected population is 317 as compare to 1975 population 297. Therefore, it was determined that 317 P.E. facilities would be required to fulfill the wastewater needs of the community for the 20 year planning period.

The Village of Hurst currently possess both sewer system and treatment facilities. The latest available survey shows that in 1972 approximately 134 residents of the Village were not connected with the sewer system which should be included in the plan. Furthermore, the Village population is increasing, and by 1885 approximately 100 more residents will be utilizing the facilities. Therefore it is estimated that the facilities requirements will be 233 P.E. for the Village of Hurst.

Population Growth Rate

Estimated 1995 wastewater flows were not used as the sole criterion for determining comparative need, since they indicated only absolute needs, and not rate at which they would occur. Therefore, as part of formulating priorities, population growth rate was not of the additional criteria utilized to determine comparative need. The municipalities were ranked, according to their projected rates of growth for the period 1975 to 1995, and scored to reflect the resulting ranking. By considering growth rates in addition to absolute needs, a more equitable basis for determining comparative long-range needs was utilized. Thus, for example, a municipality having an estimated 1995 wastewater flow much greater than those of other municipalities, but lower growth rates than others, would not necessarily dominate subsequent priorities because of size alone.

Adequacy of Existing Facilities

The adequacy of the existing facility reflects the potential impact of a wastewater system on water quality. The weights were assigned to: treatment facilities at least 30 years old; overloaded facilities, i.e., those assumed to be operated at 80 percent or more of their capacity; those facilities whose service has been interrupted by periodic flooding; municipalities without sewer services which impact water quality due to malfunctioning septic tank systems; and the effluent quality of existing wastewater treatment facilities.

Improved Management Capabilities

The factors and criteria discussed so far have considered only the needs for structural facilities, and not the operational characteristics of the facilities recommended. Additional weight was given to communities whose recommendations were considered to be a basis for improved wastewater treatment management. (Recommendations that were considered to be a basis for improved wastewater treatment management were those that involved the utilization of either existing or proposed regional treatment plants and necessary interceptors.) Although the recommendations of the regional facilities plants are cost-effective solutions to wastewater treatment problem, recommended regional wastewater facilities were also considered to be more capable of providing a basis for improved management since they would typically facilitate the more efficient use of plant operators; economies of operation and maintenance and, more importantly, better control of effluent quality.

Effect on Receiving Stream

The final parameter considered in determining priorities dealt with the effect that existing and recommended future treatment facilities will have on receiving streams. Receiving streams in the region consist of 7-day, 10-year, zero flow (intermittent) streams and/or water impoundments, and non-zero, 7-day, 10-year low flow (continuous) streams. Intermittent streams and lakes are considered to be significantly more sensitive to pollution than continuous streams. During periods of decreasing flow, an intermittent stream has proportionally decreasing ability to dilute pollutants. Thus, as the flow of an intermittent stream decreases, the probability of critical water quality conditions increase proportionately. In formulating priorities, the above described stream/lake characteristics were taken into consideration.

Priorities were assigned to the municipalities based on the scores that were determined for each area, using the point system. Following are the parameters and point values used in the determination of priorities:

Parameters	Score Point Value
(1) Facility Required	0-59*
(2) Population Growth Rates	1-66*
(3) Adequacy of Existing Facility	
a) Treatment plant 30 or more years old	5
b) Treatment plant subject to flooding	5
c) Treatment plant use to 80% or more of designed capacity in 1975	5
d) i) Community with no sewer	10
ii) Community with no sewer, but with water supply	15
e) Effluent standard violated	
i) One parameter, or less than two fold, violation by concentration	5
ii) Serious effluent standard violation	10
(4) Facilitates Improved Wastewater Treatment Management	10
(5) Effect on Receiving Stream/Lake	
a) Intermittent stream/lake	10
b) Continuous stream with dilution ratio between effluent and stream	
i) Less than 1:5	5
ii) Greater than 1:5	0

* Of the 81 municipalities considered, a number had equal ranking.

The priority scores are tabulated in Appendix Table 9. This table presents the municipalities in alphabetical order, and their total score and priority rank are shown in the last columns. The greater the score received by a municipality, the higher the priority rank which was given. Finally, in Appendix Table 10, the municipalities are arranged according to the priority ranking.

Comparison of the 208 Priorities with IEPA Priorities

The 208 project's priorities are not wholly comparable to those established by the Illinois Environmental Protection Agency (IEPA) for FY 1977. The comparison shows that only 20 percent (21 out of 57) of the municipalities maintained the same priority ranking in both systems. The following factors have caused these differences in priority ranking:

1. The 208 project ranked 81 municipalities in the ten-county area, whereas IEPA had only 57 municipalities on its FY 77 priority list.

2. The 208 project ranking system considered the overall need and problem of wastewater collection/treatment system for each individual municipality, rather than prioritizing the various parts of the system individually.

3. The population growth rate parameter played an important role in overall priority ranking. Therefore, higher population growth areas in the region received more points. The growth rate parameter was considered to establish the timing of sewer extension and/or upgrading of treatment plants. Since most of the existing facilities do produce the same quality of effluent, and their impact on water quality does not different in degree; hence, upgrading programs should be developed based upon population growth rates.

4. Unsewered communities in the 208 area which had malfunctioning septic tank systems creating health hazards and water pollution problems were given additional points. Therefore, unsewered municipalities have higher ranking in the 208 priority ranking than in the IEPA system.

Capital Scheduling

Priority ranking identifies the relative needs of the municipalities in the Southern Ilinois 208 area. The next step is to estimate the capital costs which will be involved in upgrading and/or constructing these water pollution control projects in the region. The projects costs used in the capital scheduling are taken from the U.S. Environmental Protection Agency's funded 201 (Facilities Plan) studies and Illinois Environmental Protection Agency's funded Municipal Wastewater Planning Needs studies. These studies were conducted by the communities' consulting engineers. The Commission was the prime contractor for the Municipal Wastewater Planning Needs Studies for 26 municipalities. In the several cases where 201 studies are currently in process and the necessary data were unavailable from the consulting engineers, the estimated costs are those published in the IEPA's FY 77 grant priority list. The following criteria were established for developing the capital-time scheduling of municipal wastewater collection/treatment construction projects:

1. Priority ranking based on such needs of the municipalities as water pollution control, health hazard potential, growth related needs, etc.
2. Federal/state grant availability and consistancy with their funding programs.
3. Capital required to meet 1983 goals of PL 92-500.
4. Cost-effective projects to solve water pollution problems in municipal areas.
5. Financial analysis of the project (by analyzing communities' capabilities to finance their share and exploring other sources of grants/ loans for such projects).

The capital-time scheduling of wastewater collection/treatment construction works is presented in Appendix Table 11. The 81 municipalities are divided into five groups for capital-time scheduling purposes as follows:

Group I
Those municipalities which are in the process of implementing the facility plan or which have completed their wastewater construction phase. It is assumed that these municipalities will not require additional funding until 1995.

Group II
Those municipalities which have been approved for state health hazard grants (Dowell, Equality) or are on this priority list for 1978 (Broughton, Pittsburg) are separated from federal grant ranking. It is expected that these communities will have sewer collection and treatment systems within the next two years.

Group III
According to the IEPA, those projects which appear on the IEPA priority list FY 77 and which have priority numbers below 600 will be able to receive federal grants within the next five years, (i.e., prior to FY 82.) That is 21 municipalities in the 208 area will be able to upgrade their existing facilities or build new facilities by that time. These grants are limited to those municipalities having state priority numbers under 600; therefore, in the capital-time scheduling chart, IEPA's priority ranking was used for this group.

Group IV
In order to meet the 1983 water quality goal, existing treatment facilities should have a secondary level of wastewater treatment. In Group IV, those municipalities are identified which will need federal grants to improve/upgrade their existing facilities by 1983 to meet these federal standards. These municipalities are ranked according to the 208 project priority system. Twenty-two municipalities are ranked in this group.

Group V
There are sixteen unsewered municipalities in this group which are expected to apply for federal grants. All these municipalities except two are seeking centralized collection and treatment facilities. It is recommended that Hamletsburg and Bell Prairie City construct and operate publicly-owned mound systems.

Group VI
There are only two municipalities which will not require direct federal funding, because these communities are recommended to improve their existing disposal system (septic tank systems) on an individual basis.

3. financing;
4. regulatory;
5. information/education.

Management agencies are not only responsible for providing facilities to the existing population, but are also required to consider the growth-related needs of the future in such a manner that all applicable local, state, and federal requirements are met. Sound financial management is a key factor in the operation and maintenance of a water pollution control program. The operation and maintenance process is inevitably interrupted if adequate financial resources are not available; such a situation eventually creates water pollution problems. Therefore, it is recommended that the financial strategie should be evaluated thoroughly by management agencies prior to implementation. The regulatory programs are essential tools for the proper operation and maintainance of the wastewater system. In the past, local governments have used ordinances, regulations, and codes to assure the proper functions of the wastewater facilities. Such regulary devices are effective if any only if they are adequately enforced. Information and education programs are a continuing function of a management agency. Staff training and public education reduces a number of problems related to human errors. In some cases (e.g., septic tank systems) public information and education programs may be the least-cost approach to controlling operation and maintenance problems of the system.

The management agency's geographic responsibilities are covered by corporate or their legal limits, but services may be extended by intergovernmental agreements. The facilities are operated by the management agency, but the overall regulatory and enforcement authority has been vested in the Illinois Environmental Protection Agency and the Illinois Pollution Control Board. The management agency periodically monitors the effluent quality from the wastewater treatment plant. It is the responsibility of a management agency to assure that the State's effluent criteria are not violated.

The municipalities, counties, river conservancy districts, sanitary districts, and water districts have adequate statutory authority and are eligible to construct and operate wastewater facilities. These possible management agencies are identified in Appendix Table 12. There are approximately 81 municipalities, 10 counties, 2 sanitary districts, 5 river conservancy districts, and 31 water districts in the 208 area. The table also indicates those local units of government which are currently involved in wastewater collection and/or treatment operation and construction works. Several municipalities are actively seeking Federal/State funds for construction of new facilities or upgrading of existing facilities.

Management Alternatives

In the 208 area, most of the proposed wastewater management agencies are (or will be) municipalities. The decision makers should consider alternative combinations of structural and non-structural pollution control measures to abate health hazard and water pollution conditions in the community, and the region. It is recommended that a long-range solutions should be adopted, rather than correcting existing short-term problem.

Structural Measures

Structural measures include, but are not limited to sewers, wastewater treatment plants, conventional septic tank systems, or modified on-site waste disposal systems. Structural measures require construction works; however, they tend to significantly deplete the financial resources of the community. This is one of the simplest alternatives for resolving wastewater problems. The capital cost of centralized collection and treatment facilities can be reduced substantially by phase construction of treatment facilities, time-scheduling of sewer extension, or utilization of the non-traditional collection alternatives, along with existing facilities. Several 201 and MNA studies have proposed higher design capacity of the municipal wastewater treatment facilities than otherwise suggested, based upon the assumption that the urban growth areas (located outside the corporate limits) would pump their sewage to the municipal-operated treatment plant. The time-schedules for such connections are not available. No management agencies have been designated in those "strip growth" areas. The sewer construction in strip growth areas beyond the corporate limits is doubtful, therefore, that in constructing over size treatment facilities in such situations, the municipalities are obligated to pay for the reserve capacity of the treatment plants. The publicly owned treatment plants operating agencies should not allocate such reservations without inter-agency agreements, which include IEPA and other local governments which may represent those areas.

In those cases where a management agency is responsible for on-site disposal the major management functions are considered to include:

a) System Evaluation: Each wastewater disposal facility should be individually evaluated for such criteria as site selection, design, and construction.

b) Maintenance Scheduling: The management agency should be responsible for providing septic tank cleaning service periodically. The waste hauling trucks and other necessary equipment may be operated by the management agency.

c) Ultimate Disposal: The collected septage from septic tanks, should be disposed of safely. The options include spraying on a sanitary land fill, separate treatment facility, or treatment by an existing wastewater treatment facility. The last option will require septage analysis to determine the acceptability by the proposed treatment plant, pretreatment requirements, availability of extra-treatment capacity of the proposed facilities, cost effectivesness, and an inter-governmental agreement.

Non-Structural Measures

Non-structural measures are the regulatory actions (regulations, ordinances, codes) or information and education programs which may be implemented with little capital investment. These control measures are especially effective in achieving the long-range management water quality goals. The success of regulatory/voluntary measures represent the best management practices, as well as public concern in the community. Historically, due to certain reasons, non-structural measures have not been attractive to the public, or among public officials; however, public awareness of pollution problems and escalating capital costs of structural control measures may change this trend. The non-structural measures may be classified as follows:

a) Operational Control: To assure the regular operation and maintenance process of the wastewater collection and treatment facilities, sewer ordinances and industrial pretreatment ordinances are required by the IEPA and U.S. EPA. Private disposal systems are regulated by State and county health departments.

b) Land Use Control: Municipalities and counties have the statutory authority to implement land use and zoning programs.

Environmentally sensitive areas may be protected through land use and zoning ordinances. The majority of the municipalities and all the counties of the 208 area have not erected land use or zoning ordinances. Those municipalities which have adopted zoning ordinances have legal authority to enforce zoning ordinances within an area 1½ miles beyond the municipal boundaries. Land use planning and control practices reduce roadside development in the rural areas which are common in the region. Such developments usually require centralized public services to abate water quality problems. These unincorporated strip growth areas are not eligible for State or federal grants for sewer facilities; therefore, one of the solutions is annexation with a nearby municipality.

c) Public Information and Education: The public information and education programs include: the education of individuals about the operation and maintenance requirements of on-site disposal systems; publicly owned treatment plants operators' training; and public involvement in related projects such as sewer extension. Conversation techniques should be utilized also to decrease the waste loading on treatment plants, through water conservation or in adjustment of peak flow conditions. Conservation measures are of particular importance with on-site disposal systems.

New Approaches in Management

The Municipal Needs Analysis (MNA) studies propose two new management approaches for four municipalities of the 208 area. These consist of Publicly owned septic tank systems and Municipal septic tank cleaning services.

These approaches may be utilized more effectively in non-urbanized areas, but for small municipal population areas a thorough investigation will be required, in order to determine the feasibility and acceptability of such management structures. The implementation of the septic tank - mound unit cluster systems in Belle Prairie City and Hamletsburg, and of the municipal septic tank cleaning services in Macedonia and Stonefort, are contingent upon the municipal governments acceptance of these programs. In non-urbanized areas where existing on-site disposal facilities are functioning reasonably properly or there are minor problems related to the operations and maintence of such systems, then the water districts and/or counties may provide (directly or indirectly) septic tank cleaning services. Local governments can provide septic tank cleaning services by directly operating the facilities (such facilities are federal grant eligible, e.g., hauling trucks, etc.) or by contracting with a private enterprise. The charge for such services may be included in water or other utility bills. It is emphasized that facilities plan (Step I) grants should be allocated for the concerned municipalities in order to further investigate technical and management feasibilities of the alternative systems recommended by the MNA studies.

Chapter 7

CONCLUSION AND RECOMMENDATIONS

The available technologies, financial resources, and implementation strategies to solve the wastewater needs of the 208 area's municipalities have been presented in the previous chapters. Public representatives have the opportunities to select the best combination of alternatives to correct the wastewater problems in their communities. The wastewater treatment alternatives and implementation processes should reflect the particular needs of those communities.

Land Application - Alternatives

Although the land application methods (especially the irrigation method) of wastewater treatment were considered, they were found not to be cost-effective. In only one case (Eddyville) the overland flow method was determined to be cost-effective. On the basis of several studies it is suggested that the land treatment alternative is very promising in rural communities of the region dependent upon individual conditions.
Recent federal regulations require serious consideration of the land application systems. In the 208 area currently, several industrial/feedlot facilities are applying wastewater to irrigate crops. Such facilities are identified in the Southern Illinois 208 area report. This wastewater generally has high nutrient value; therefore, the annual yield of the crops is significantly higher than those depending on fresh water. The application of wastewater does not have appreciable impact on surface and/or ground water quality. Furthermore, the economic and technical feasibility of the system convinced the operator to utilize additional wastewater from other sources. The application of overland flow method in the region is being studied, and the results are encouraging. The land treatment alternatives have proven the economic and technical feasibility in private sectors; however, the consulting engineers concluded the reverse for the municipalities. Therefore, it is recommended that U.S. EPA should fund for the land treatment systems for small communities of the 208 area, if the land is available. The land treatment system may have a two-fold impact on regional environment both wastewater treatment, and enhanced reclamation of surface mined land.

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Exisiting Facilities

Many existing wastewater treatment facilities in the area are inefficient and overloaded. The constructing of new facilities or upgrading the existing treatment facilities, and the rehabilitation of sewer systems to control the inflow are steps that should be taken to meet the 1983 water quality goals.

There is little doubt that significant malfunctioning of the waste disposal facilities in unsewered municipalities due to natural factors; although improper management and maintenance of these facilities is also a major contributing factor. The existing poor conditions in the municipalities consequently affect water quality and create health hazards. The customarily considered on-site disposal alternatives are not technically or economically feasible in most cases.

Therefore, centralized collection systems (sewers) with wastewater treatment facilities were recommended by the consulting engineers to be the best alternative to provide most unsewered municipalities' needs. The recent Clean Water Act of 1977 (PL95-217) increases federal grant share from 75% to 85% for innovative technologies of wastewater collection and treatment facilities. The cost-effectiveness and user's charges concerning these innovative alternatives should be re-evaluated in the facilities planning (Step I) studies in the future. The higher funding level for non-traditional systems may reduce the local share and provide a more attractive alternative to the communities. In cases where on-site systems (septic tank systems) were proposed (based on cost-effectiveness) a detailed technical feasibility study will be required along with implementation programs.

A variety of financial resources are available to the 208 area's municipalities. The U.S. EPA's grant for municipal wastewater collection and treatment construction works is essential. For small municipalities, a supplemental grant and/or loan (probably from FmHA) will also be required to lower the sewer service charges to a politically acceptable level. The urban growth areas outside the municipal corporate boundaries are not eligible for federal and/or state grants and/or loans. However, if the municipalities, counties, sanitary districts, or water districts are willing to accept the management responsibilities for those areas, they may receive funds for such areas.

The priorities of the 81 regional municipalities were established to determine relative needs and the associated impact on water quality. These priorities were established not only to fulfill the 208 project's requirement, but also to provide a second choice to the decision makers. Indeed, the 208 priorities are different from those of IEPA, which has financial control over the federal grant distribution program within the State. Therefore, in capital scheduling, adjustments have been made so as to avoid any conflict with the state/federal on-going programs. It was estimated that approximately $42,081,485 will be required to provide wastewater collection and treatment facilities to the 208 area's municipalities in a 20-year planning period.

A sound management system exists in each of the 81 municipalities to implement the proposed wastewater programs. The management acceptability of the municipality to operate the publicly owned septic system or public septic tank cleaning service requires further investigation. It is concluded that the majority of unsewered municipalities are willing to accept the management responsibilities of sewer system and wastewater treatment facilities within corporate limits and/or facility planning areas. The urban developed area located outside the municipal corporate boundaries may be served with the following management arrangements:

1. They may be annexed by the municipality;
2. County or water district (if any) should assume sewer service responsibility which may be treated by municipal treatment facilities; or
3. The developed areas could form a sanitary district which can accept the management responsibilities.

A comprehensive plan should be developed to implement septic system programs on areawide basis. Individually or in cooperation, the counties, river conservancy districts, water districts, sanitary districts, and municipalities can develop the necessary effective management structures.

This phase of the regional 208 study has considered a number of approaches to resolving the existing municipal wastewater problems.

The analysis of the best available information has been undertaken in order to present the general problems and solutions of the 208 area's municipalities. The precise nature and degree of problems varies from municipality to municipality, hence, and so do the most appropriate corrective measures. It is recommended that facility plans (201 Step I) or municipal need analysis (MNA) studies should be consulted for specific information concerning individual municipalities. Based on the available information, the following recommendations are made:

1. A thorough investigation should be performed to evaluate the technical and implementation feasibilities of on-site disposal alternatives, such as mound systems, in the area's municipalities.

2. The U.S. EPA should fund at least two municipal demonstration projects which utilize land treatment methods within the 208 area.

3. The operation and maintenance requirements of septic systems should be rigorously enforced by local governments where the natural characteristics (e.g. soil conditions) are found satisfactory.

4. The land use control program should be adopted by municipalities and counties to control non-urban water pollution problems in the region.

5. The majority of the unsewered municipalities are recommended for centralized sewer system and wastewater facilities; therefore, U.S. EPA funds should be allocated for construction of such facilities.

6. The Farmers Home Administration grants and loans should be available to the small unsewered municipalities. The active participation of the 208 regional water quality council should work with the FmHA to provide supplemental grants for wastewater collection/treatment construction works.

7. The sewer service charges should be based on the most appropriate financial arrangements available and the public's ability to pay the monthly rates for such services.

8. The sewer service should not be extended outside the existing municipal boundaries without annexation or explicit intergovernment agreements with the responsible management agencies.

9. The management agency should operate the wastewater facilities at its maximum efficiency. Operator training, conservation practices, and regulatory programs should be developed, in order to assure that proper operation and maintenance requirements of the system will be fulfilled.

10. Municipalities which are not currently on the IEPA grants priority list should file application for federal grants.

11. All the area's unsewered communities should be funded for 201 Step I grant. The 201 studies should conduct a detail field study to evaluate the possibility to implement on-site system in the area as an alternative to the proposed contralized sewer system. The study should consider the

availability of 85% federal grant for innovative system (on-site) and a higher priority ranking on the state list for such system. If the 201 Step I study determines that on-file system is feasible (economically and technically) in the unsewered areas, then the said community should implement the on-site alternative to eliminate the wastewater disposal problem.

12. The municipalities should continue the planning process to evaluate the realistic growth-related needs of the community in cooperation with the regional planning commission.

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APPENDIX A

MUNICIPAL NEEDS DATA SHEET

In the following pages the necessary data are presented to evaluate the municipal wastewater needs. The 81 municipalities of the Southern Illinois 208 area are grouped by counties and arranged in alphabetical order. The dash (-) is used where the information was not available, and N.A. (Not Applicable) indicates that the concerned item does not apply in this case. A Y in the blocks, $\boxed{\text{Y}}$ is used to indicate that the item was considered for the study.

County	Page #
Franklin	A-1
Gallatin	A-18
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MUNICIPAL NEEDS DATA SHEET

FPA Benton

County Franklin

Municipality Benton

Existing Wastewater Collection/Treatment/Disposal System

System Description: NW Plant: Aerated grit chamber, trickling filter, Clarifier
SE Plant: Lagoon

Design Capacity (MGD): 2.4

		BOD-5		TSS		P
Effluent Quality (1975) mg/l	SE	27	SE	31	SE	N.A.
	NW	26	NW	20	NW	N.A.
Effluent Limitation mg/l		10		12		-

Municipal Needs

	1975	1995
Population	6,833	8,307
Treatment Facility Design P.E.		
Time Schedule for the Project		1979

Waste Loads		1975	1995
BOD-5 lbs/day	SE	9.5	69.2
	NW	216.8	
TSS lbs/day	SE	10.9	83.1
	NW	166.8	
Flow MGD			0.83

Effluent Receiving Stream Sugar Creek

7-Day, 10-Year Low Flow (cfs) 0.63

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $__________ Community's Share $__________
Annual Operation and Maintenance Cost $__________

Financial Arrangement

Assessed Valuation (1974) $11,389,000.00
Annual Family Median Income 1974 $8,423.00
Annual Cost Debt Service (5% - 40 years) + O&M = $__________
Number of Users ________ Monthly User's Charges $________/household
Bond Indebtness 1974 $________ Water $______ Sewer $______
Water/Sewer $ 1,349,000.00

Comments

The Benton facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Christopher

County Franklin

Municipality Buckner

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995
Population	433	298
Treatment Facility Design P.E.		540
Time Schedule for the Project		1981

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.03

Effluent Receiving Stream -

7-Day, 10-Year Low Flow (cfs) -

Selected Alternate: Sewer system, sewage transport to Christopher

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 1,062,338.00 Community's Share $ 265,585.00
Annual Operation and Maintenance Cost $ 16,300.00

Financial Arrangement

Assessed Valuation (1974) $354,000.00
Annual Family Median Income 1974 $ 5,977.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 32,006.00
Number of Users 200 Monthly User's Charges $ 13.33 /household
Bond Indebtness 1974 $ Water $ 91,000 Sewer $
Water/Sewer $

Comments

The Christopher facilities planning (201) report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Christopher
County Franklin
Municipality Christopher

Existing Wastewater Collection/Treatment/Disposal System

System Description: Two parallel one-cell lagoons

Design Capacity (MGD): 0.52

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N 34 S 33	N 85 S 96	N N.A. S N.A.
Effluent Limitation	mg/l	10	12	

Municipal Needs

	1975	1995
Population	2,936	3,042
Treatment Facility Design P.E.		4,240
Time Schedule for the Project		1980

Waste Loads		1975	1995
BOD-5	lbs/day	N 37.3 S 32.9	35.6
TSS	lbs/day	N 91.6 S 96.0	42.7
Flow MGD		N 0.13 S 0.12	0.427

Effluent Receiving Stream Unnamed Trib. to Willis Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: New regionalized plant, inflow removal, activated sludge, BRD, tertiary filters, and chlorination

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 2,112,055.00 Community's Share $ 528,014.00
Annual Operation and Maintenance Cost $ 49,932.00

Financial Arrangement

Assessed Valuation (1974) $3,484,000.00
Annual Family Median Income 1974 $7,373.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 73,946.00
Number of Users 1,150 Monthly User's Charges $ 6.24 /household
Bond Indebtness 1974 $ Water $ Sewer $ 218,000.00
Water/Sewer $

Comments

The Christopher facilities planning (201) report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Rend Lake-East   County Franklin

Municipality Ewing

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	0.05

Municipal Needs

	1975	1995
Population	208	132
Treatment Facility Design P.E.		2,500
Time Schedule for the Project		1977

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	21
TSS lbs/day	N.A.	25
Flow MGD	N.A.	0.25

Effluent Receiving Stream Via Gun Creek to Rend Lake

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Regionalized treatment/collection facilities for Southern portion of the FPA. The facilities included sewer system, activated sludge with BRD and tertiary filter.

Substantial Human Habitation Y   Cost Effectiveness N
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $1,801,909.00 Community's Share $ 450,477.00
Annual Operation and Maintenance Cost $ 54,650.00

Financial Arrangement

Assessed Valuation (1974) $221,000.00
Annual Family Median Income 1974 $ 6,536.00
Annual Cost Debt Service (5% - 40 years) + O&M = $80,904.00
Number of Users ______ Monthly User's Charges $__________/household
Bond Indebtness 1974 $__________ Water $_______ Sewer $________
Water/Sewer $______________

Comments

The Rend Lake-East facilities planning report has been completed, and the facilities are in design/construction stages.

MUNICIPAL NEEDS DATA SHEET

FPA Freeman Spur
County Franklin
Municipality Freeman Spur

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual Septic Tank System

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	346	278	BOD-5 lbs/day	N.A.	3.80
Treatment Facility Design P.E.		450	TSS lbs/day	N.A.	4.5
Time Schedule for the Project		1982	Flow MGD	N.A.	0.05

Effluent Receiving Stream Pond Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Sewer system, package nitrification, tertiary filter, sludge drying bed

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 885,000.00 Community's Share $ 225,750.00
Annual Operation and Maintenance Cost $ 17,000.00

Financial Arrangement

Assessed Valuation (1974) $224,000.00
Annual Family Median Income 1974 $ 6,639.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 30,157.00
Number of Users 175 Monthly User's Charges $ 14.36 /household
Bond Indebtness 1974 $ ______ Water $ 93,000 Sewer $ ______
Water/Sewer $ ______

Comments

The Freeman Spur facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Hanaford County Franklin

Municipality Hanaford

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	298	317	BOD-5 lbs/day	N.A.	2
Treatment Facility Design P.E.		317	TSS lbs/day	N.A.	3
Time Schedule for the Project		1989	Flow MGD	N.A.	0.032

Effluent Receiving Stream Trib. to Middle Fork Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Lagoon systems, gravity sewers

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $541,100.00 Community's Share $139,025.00
Annual Operation and Maintenance Cost $6,500.00

Financial Arrangement

Assessed Valuation (1974) $145,000.00
Annual Family Median Income 1974 $8,424.00
Annual Cost Debt Service (5% - 40 years) + O&M = $14,602.00
Number of Users 113 Monthly User's Charges $ 11.00 /household
Bond Indebtness 1974 $____ Water $____ Sewer $____
Water/Sewer $____

Comments

The Hanaford MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Macedonia County Franklin

Municipality Macedonia

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	82	67	BOD-5 lbs/day	N.A.	N.A.
Treatment Facility Design P.E.		N.A.	TSS lbs/day	N.A.	N.A.
Time Schedule for the Project		No Action	Flow MGD	N.A.	N.A.

Effluent Receiving Stream -

7-Day, 10-Year Low Flow (cfs) -

Selected Alternate: Municipal septic tank service

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $

Annual Operation and Maintenance Cost $ 840.00

Financial Arrangement

Assessed Valuation (1974) $60,000.00

Annual Family Median Income 1974 $ 3,913.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ N.A.

Number of Users 32 Monthly User's Charges $ 2.20 /household

Bond Indebtness 1974 $ Water $ 62,000 Sewer $

Water/Sewer $

Comments

The Macedonia MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Christopher

County Franklin

Municipality North City

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995
Population	353	341
Treatment Facility Design P.E.		400
Time Schedule for the Project		1991

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.034

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Sewer system, sewage transport to Christopher

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 508,235.00 Community's Share $127,059.00

Annual Operation and Maintenance Cost $ 12,755.00

Financial Arrangement

Assessed Valuation (1974) $172,000.00

Annual Family Median Income 1974 $ 6,412.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 20,640.00

Number of Users 160 Monthly User's Charges $ 13.61 /household

Bond Indebtness 1974 $______ Water $______ Sewer $______

Water/Sewer $______

Comments

The Christopher facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA West Frankfort County Franklin

Municipality Orient

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995
Population	455	552
Treatment Facility Design P.E.		552
Time Schedule for the Project		1993

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.06

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Gravity sewer system, pumping the waste to West Frankfort Treatment Plant

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 823,000.00 Community's Share $ 205,750.00
Annual Operation and Maintenance Cost $ 15,900.00

Financial Arrangement

Assessed Valuation (1974) $208,000.00
Annual Family Median Income 1974 $ 6,739.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 27,891.00
Number of Users 237 Monthly User's Charges $ 9.81 /household
Bond Indebtness 1974 $ ______ Water $ 21,500 Sewer $ ______
Water/Sewer $ ______

Comments

The West Frankfort MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Royalton **County** Franklin

Municipality Royalton

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.135

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	20	28	N.A.
Effluent Limitation	mg/l	10	12	N.A.-

Municipal Needs

	1975	1995
Population	1,142	1,049
Treatment Facility Design P.E.		
Time Schedule for the Project		1982

Waste Loads	1975	1995
BOD-5 lbs/day	15.2	9
TSS lbs/day	21.7	10
Flow MGD	0.093	0.105

Effluent Receiving Stream Unnamed Creek to Big Muddy

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974)$1,059,000.00
Annual Family Median Income 1974 $ 7,126.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $ 49,000.00
Water/Sewer $

Comments

The Royalton facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Sesser
County Franklin
Municipality Sesser

Existing Wastewater Collection/Treatment/Disposal System

System Description: Parallel Imhoff tank, trickling filter, settling tank, chlorination

Design Capacity (MGD): 0.25

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	25	27	-
Effluent Limitation	mg/l	10	12	0.05

Municipal Needs

	1975	1995
Population	2,320	2,434
Treatment Facility Design P.E.		2,800
Time Schedule for the Project		1978

Waste Loads		1975	1995
BOD-5	lbs/day	47.8	23
TSS	lbs/day	51.7	28
Flow MGD		0.23	0.28

Effluent Receiving Stream Jackie Branch

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Sewer extension, inflow removal, intercepter sewer for basin transfer, activated sludge, BRD, and filtration plant in Little Muddy basin

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 2,281,000.00 Community's Share $560,311.00
Annual Operation and Maintenance Cost $61,093.00

Financial Arrangement

Assessed Valuation (1974)
Annual Family Median Income 1974 $7,237.00
Annual Cost Debt Service (5% - 40 years) + O&M = $93,747.00
Number of Users 921 Monthly User's Charges $ 8.48 /household
Bond Indebtness 1974 $ Water $25,000 Sewer $56,000.00
Water/Sewer $

Comments

The Sesser facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Thompsonville

County Franklin

Municipality Thompsonville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Septic tank, intermittent sand filter, chlorination

Design Capacity (MGD): 0.04

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	8	7	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs	1975	1995
Population	459	403

Treatment Facility Design P.E.

Time Schedule for the Project 1974

Waste Loads	1975	1995
BOD-5 lbs/day	1.0	3
TSS lbs/day	0.9	4
Flow MGD	0.015	0.04

Effluent Receiving Stream Unnamed Creek to Steven's Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $

Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $504,000.00

Annual Family Median Income 1974 $4,921.00

Annual Cost Debt Service (5% - 40 years) + O&M = $

Number of Users Monthly User's Charges $ /household

Bond Indebtness 1974 $ Water $7,700 Sewer $242,000.00

Water/Sewer $

Comments

The Thompsonville facilities has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Christopher

County Franklin

Municipality Urbain

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.-

Municipal Needs

	1975	1995
Population	47	40
Treatment Facility Design P.E.		
Time Schedule for the Project		1995

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	.004

Effluent Receiving Stream ______

7-Day, 10-Year Low Flow (cfs) ______

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $______ Community's Share $______
Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) ______
Annual Family Median Income 1974 $ 3,526.00
Annual Cost Debt Service (5% - 40 years) + O&M = $______
Number of Users ______ Monthly User's Charges $______/household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $______

Comments

The Christopher facilities planning report has been completed. The Village of Urbain was not studied in the report.

MUNICIPAL NEEDS DATA SHEET

FPA Christopher

County Franklin

Municipality Valier

Existing Wastewater Collection/Treatment/Disposal System

System Description: 3-stage lagoon, chlorination

Design Capacity (MGD): 0.08

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	30	36	N.A.
Effluent Limitation	mg/l	30	30	N.A..

Municipal Needs

	1975	1995
Population	619	585
Treatment Facility Design P.E.		800
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	15	20.0
TSS lbs/day	18	20.0
Flow MGD	0.06	0.080

Effluent Receiving Stream Unnamed Creek to Andy Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Upgrading existing facility by adding intermittent sand filters

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $129,277.00 Community's Share $ 32,319.00
Annual Operation and Maintenance Cost $ 7,150.00

Financial Arrangement

Assessed Valuation (1974) $477,000.00
Annual Family Median Income 1974 $ 6,412.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 9,221.00
Number of Users 240 Monthly User's Charges $ 3.20 /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $194,000.00

Comments

The Christopher facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Benton

County Franklin

Municipality West City

Existing Wastewater Collection/Treatment/Disposal System

System Description: Sewer system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995
Population	669	813
Treatment Facility Design P.E.		900
Time Schedule for the Project		1977

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.090

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Sewer system, sewage pump to Benton for treatment

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $1,080,000.00 Community's Share $ 206,259.00
Annual Operation and Maintenance Cost $ 14,675.00

Financial Arrangement

Assessed Valuation (1974) $818,000.00
Annual Family Median Income 1974 $ 6,681.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 26,696.00
Number of Users 305 Monthly User's Charges $ 7.29 /household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $______

Comments

The West City sewer system was constructed in 1977.

MUNICIPAL NEEDS DATA SHEET

FPA West Frankfort **County** Franklin

Municipality West Frankfort

Existing Wastewater Collection/Treatment/Disposal System

System Description: Trickling filter, secondary clarifier, polishing lagoon, chlorination

Design Capacity (MGD): 1.4

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	10	26	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	8,854	10,056	BOD-5 lbs/day	73.4	94.1
Treatment Facility Design P.E.		11,288	TSS lbs/day	190.8	113.0
Time Schedule for the Project		1983	Flow MGD	0.88	1.13

Effluent Receiving Stream Middle Fork to Big Muddy River

7-Day, 10-Year Low Flow (cfs) 0.98

Selected Alternate: Sewer extension, treatment facility upgrading of the system (Tower T.F.) for Orient and other sections of FPA, Pershing, Highway 37. Regionalized treatment facilities.

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 1,426,060.00 Community's Share $ 356,515.00

Annual Operation and Maintenance Cost $231,278.00

Financial Arrangement

Assessed Valuation (1974)$11,979,000.00

Annual Family Median Income 1974 $ 7,790.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 252,056.00

Number of Users 3,560 Monthly User's Charges $ 5.90 /household

Bond Indebtness 1974 $ ______ Water $ 52,000 Sewer $ 242,000.00

Water/Sewer $ ______

Comments

The West Frankfort MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Zeigler

County Franklin

Municipality Zeigler

Existing Wastewater Collection/Treatment/Disposal System

System Description: Single-stage lagoon, contact tank chlorination

Design Capacity (MGD): 0.234

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	18	46	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs	1975	1995	Waste Loads	1975	1995
Population	1,862	1,581	BOD-5 lbs/day	30.1	13
Treatment Facility Design P.E.			TSS lbs/day	77.9	16
Time Schedule for the Project		1983	Flow MGD	0.203	0.158

Effluent Receiving Stream Unnamed Creek to Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $______ Community's Share $______
Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) $1,861,000.00
Annual Family Median Income 1974 $6,663.00
Annual Cost Debt Service (5% - 40 years) + O&M = $______/household
Number of Users ______ Monthly User's Charges $______
Bond Indebtness 1974 $______ Water $70,000 Sewer $179,000.00
Water/Sewer $______

Comments

The Zeigler facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Equality
County Gallatin
Municipality Equality

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995
Population	802	930
Treatment Facility Design P.E.		930
Time Schedule for the Project		1978

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	23.3
TSS lbs/day	N.A.	23.3
Flow MGD	N.A.	0.09

Effluent Receiving Stream Saline River

7-Day, 10-Year Low Flow (cfs) 2.0

Selected Alternate: 3-cell non-aerated lagoons, sand filter, chlorination

Substantial Human Habitation [Y]
Cost Effectiveness [Y]
Availability of Land for Waste Treatment Facilities [Y]

Cost Analysis

Total Capital Cost $1,202,300.00 Community's Share $315,575.00
Annual Operation and Maintenance Cost $ 17,200.00

Financial Arrangement

Assessed Valuation (1974) $761,000.00
Annual Family Median Income 1974 $8,901.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 35,592.00
Number of Users 345 Monthly User's Charges $ 8.60 /household
Bond Indebtness 1974 $ Water $137,000 Sewer $
Water/Sewer $

Comments

The Equality MPA report has been completed. The state has approved Health Hazard Grant for wastewater collection/treatment construction works in 1977.

MUNICIPAL NEEDS DATA SHEET

FPA Junction

County Gallatin

Municipality Junction

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs	1975	1995
Population	216	216
Treatment Facility Design P.E.		216
Time Schedule for the Project		1994

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	2
TSS lbs/day	N.A.	2
Flow MGD	N.A.	0.022

Effluent Receiving Stream Cypress Ditch

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewers, 3-stage stabilization pond, chlorination

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $414,000.00 Community's Share $103,500.00

Annual Operation and Maintenance Cost $4,000.00

Financial Arrangement

Assessed Valuation (1974) $219,000.00

Annual Family Median Income 1974 $ 9,645.00

Annual Cost Debt Service (5% - 40 years) + O&M = $10,032.00

Number of Users 90 Monthly User's Charges $ 9.29 /household

Bond Indebtness 1974 $________ Water $_______ Sewer $_______

Water/Sewer $__________

Comments

The Junction MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA New Haven
County Gallatin
Municipality New Haven

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	20	25	N.A.

Municipal Needs

	1975	1995
Population	557	440
Treatment Facility Design P.E.		
Time Schedule for the Project		1982

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	7
TSS lbs/day	N.A.	9
Flow MGD	N.A.	0.04

Effluent Receiving Stream Little Wabash River

7-Day, 10-Year Low Flow (cfs) 6.7

Selected Alternate:

Substantial Human Habitation Y Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $490,000.00
Annual Family Median Income 1974 $ 9,308.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ 84,000 Sewer $
Water/Sewer $

Comments

Information on New Haven FPA is not available.

MUNICIPAL NEEDS DATA SHEET

FPA Shawneetown

County Gallatin

Municipality Old Shawneetown

Existing Wastewater Collection/Treatment/Disposal System

System Description:

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	345	357
Treatment Facility Design P.E.		360
Time Schedule for the Project		1982

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.036

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Regionalization with Shawneetown, construction of sewer system

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 303,800.00 Community's Share $ 75,950.00
Annual Operation and Maintenance Cost $ 4,300.00

Financial Arrangement

Assessed Valuation (1974) $907,000.00
Annual Family Median Income 1974 $9,627.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 20,678.00
Number of Users 120 Monthly User's Charges $ 14.36 /household
Bond Indebtness 1974 $ Water $ 49,000 Sewer $
Water/Sewer $

Comments

The Shawneetown facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Omaha

County Gallatin

Municipality Omaha

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	367	340	BOD-5 lbs/day	N.A.	8.51
Treatment Facility Design P.E.		340	TSS lbs/day	N.A.	8.51
Time Schedule for the Project		1985	Flow MGD	N.A.	0.03

Effluent Receiving Stream Cane Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewer, 3-stage stabilization ponds, sand filter, chlorination

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 690,000.00 Community's Share $ 191,250.00
Annual Operation and Maintenance Cost $ 5,000.00

Financial Arrangement

Assessed Valuation (1974) $581,000.00
Annual Family Median Income 1974 $ 10,173.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 16,146.00
Number of Users 175 Monthly User's Charges $ 7.69 /household
Bond Indebtness 1974 $ Water $ 59,000 Sewer $
Water/Sewer $

Comments

The Omaha MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Ridgway County Gallatin

Municipality Ridgway

Existing Wastewater Collection/Treatment/Disposal System

System Description: Complete mix with tertiary filtration

Design Capacity (MGD): 0.135

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	48	38	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	1,310	1,456
Treatment Facility Design P.E.		1,456
Time Schedule for the Project		1983

Waste Loads		1975	1995
BOD-5	lbs/day	52	12.1
TSS	lbs/day	42	14.6
Flow MGD		0.131	0.15

Effluent Receiving Stream Crawford Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Plant improvement, sewer rehabilitation

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 549,360.00 Community's Share $140,340.00

Annual Operation and Maintenance Cost $ 16,060.00

Financial Arrangement

Assessed Valuation (1974) $2,262,000.00

Annual Family Median Income 1974 $ 12,388.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 24,239.00

Number of Users 480 Monthly User's Charges $ 4.21 /household

Bond Indebtness 1974 $ ______ Water $ ______ Sewer $ ______

Water/Sewer $47,000.00

Comments

The Ridgway MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Shawneetown

County Gallatin

Municipality Shawneetown

Existing Wastewater Collection/Treatment/Disposal System

System Description: Single cell lagoon and Imhoff tank, trickling filter

Design Capacity (MGD): 0.175

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	Lagoon STW 59	Lagoon STW 99	Lagoon STW N.A.
Effluent Limitation	mg/l	Lagoon 38 STW 10	84 12	Lagoon STW N.A.

Municipal Needs

	1975	1995
Population	1,747	1,768
Treatment Facility Design P.E.	3,065 (Including O. Shawneetown)	
Time Schedule for the Project	1979	

Waste Loads		1975	1995
BOD-5 lbs/day	Lagoon STW	24.6 42.1	25.6
TSS lbs/day	Lagoon STW	41.3 92.1	30.7
Flow MGD	Lagoon STW	0.05 0.132	0.31

Effluent Receiving Stream Unnamed creek to Ohio River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Regionalization treatment facilities, package contact stabilization plant and sludge drying bed, sewer rehabilited/replacement

Substantial Human Habitation ☐ Cost Effectiveness ☒ Y

Availability of Land for Waste Treatment Facilities ☒ Y

Cost Analysis

Total Capital Cost $ 2,025,400.00 Community's Share $574,000.00

Annual Operation and Maintenance Cost $ 38,800.00

Financial Arrangement

Assessed Valuation (1974) $2,662,000.00

Annual Family Median Income 1974 $ 10,358.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 72,253.00

Number of Users 675 Monthly User's Charges $ 8.92 /household

Bond Indebtness 1974 $____ Water $ 190,000 Sewer $____

Water/Sewer $____

Comments

The Shawneetown facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Belle Prairie City County Hamilton

Municipality Belle Prairie City

Existing Wastewater Collection/Treatment/Disposal System

System Description: Indvidual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	49	45	BOD-5 lbs/day	N.A.	N.A.
Treatment Facility Design P.E.		49	TSS lbs/day	N.A.	N.A.
Time Schedule for the Project		1995	Flow MGD	N.A.	N.A.

Effluent Receiving Stream -

7-Day, 10-Year Low Flow (cfs) -

Selected Alternate: Septic tank, mound system (cluster type)

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 97,000.00 Community's Share $ 24,300.00
Annual Operation and Maintenance Cost $ 1,000.00

Financial Arrangement

Assessed Valuation (1974) $41,000.00
Annual Family Median Income 1974 $ 6,575.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 2,416.00
Number of Users 20 Monthly User's Charges $ 10.07 /household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $______

Comments

The Belle Prairie City MNA has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Broughton County Hamilton

Municipality Broughton

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.-

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	265	370	BOD-5 lbs/day	N.A.	9.3
Treatment Facility Design P.E.		370	TSS lbs/day	N.A.	9.3
Time Schedule for the Project		1979	Flow MGD	N.A.	0.04

Effluent Receiving Stream Trib. to North Fork Saline River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Small diameter gravity sewer, stabilization ponds, sand filters, chlorine contact tank

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 349,200.00 Community's Share $95,550.00
Annual Operation and Maintenance Cost $9,300.00

Financial Arrangement

Assessed Valuation (1974) $321,000.00
Annual Family Median Income 1974 $6,784.00
Annual Cost Debt Service (5% - 40 years) + O&M = $14,869.00
Number of Users 100 Monthly User's Charges $ 12.39 /household
Bond Indebtness 1974 $ Water $46,000 Sewer $
Water/Sewer $

Comments

The Broughton MNA report has been completed. The village is on State Health Hazard Grant list for wastewater collection and treatment construction works.

MUNICIPAL NEEDS DATA SHEET

FPA Dahlgren
County Hamilton
Municipality Dahlgren

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	580	751	BOD-5 lbs/day	N.A.	17.1
Treatment Facility Design P.E.		683	TSS lbs/day	N.A.	17.1
Time Schedule for the Project		1977	Flow MGD	N.A.	0.07

Effluent Receiving Stream Shelton Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewers, lagoon with sand filter

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $442,000.00 Community's Share $ 231,505.00
Annual Operation and Maintenance Cost $ 5,400.00

Financial Arrangement

Assessed Valuation (1974) $570,000.00
Annual Family Median Income 1974 $ 8,536.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 18,892.00
Number of Users 240 Monthly User's Charges $ 6.56 /household
Bond Indebtness 1974 $ Water $ 250,000 Sewer $
Water/Sewer $

Comments

The Dahlgren facilities planning report has been completed, and the facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA McLeansboro

County Hamilton

Municipality McLeansboro

Existing Wastewater Collection/Treatment/Disposal System

System Description: Imhoff tank, trickling filter plant

Design Capacity (MGD): 0.35

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	62	30	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	2,913	3,230
Treatment Facility Design P.E.		3,500
Time Schedule for the Project		1978

Waste Loads	1975	1995
BOD-5 lbs/day	155.1	29.2*
TSS lbs/day	73.8	35.0*
Flow MGD	0.30	0.70

Effluent Receiving Stream Bear Creek Trib. to Ten Mile Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Activated sludge, BRD, tertiary filters, chlorination, sludge drying bed, partial inflow removed from the system

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 2,276,859.00 Community's Share $ 569,215.00

Annual Operation and Maintenance Cost $ 65,208.00

Financial Arrangement

Assessed Valuation (1974) $4,481,000.00

Annual Family Median Income 1974 $8,309.00

Annual Cost Debt Service (5% - 40 years) + O&M = $98,382.00

Number of Users 1,513 Monthly User's Charges $ 5.42 /household

Bond Indebtness 1974 $____ Water $____ Sewer $____

Water/Sewer $ 102,000.00

Comments

The McLeansboro facilities planning report has been completed.

* The BOD-5 and TSS wasteload was estimated on 3,500 P.E.

MUNICIPAL NEEDS DATA SHEET

FPA Cave-In-Rock County Hardin

Municipality Cave-In-Rock

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	20	25	N.A.

Municipal Needs

	1975	1995
Population	538	625
Treatment Facility Design P.E.		600
Time Schedule for the Project		1977

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	10
TSS lbs/day	N.A.	13
Flow MGD	N.A.	0.06

Effluent Receiving Stream Ohio River

7-Day, 10-Year Low Flow (cfs) 12,610

Selected Alternate: Conventional gravity sewer, oxidation ponds

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 715,750.00 Community's Share $271,400.00
Annual Operation and Maintenance Cost $ 8,500.00

Financial Arrangement

Assessed Valuation (1974) $3,858,000.00
Annual Family Median Income 1974 $7,978.00
Annual Cost Debt Service (5% - 40 years) + O&M = $24,317.00
Number of Users 220 Monthly User's Charges $ 9.21 /household
Bond Indebtness 1974 $ Water $82,000 Sewer $
Water/Sewer $

Comments

The Cave-In-Rock facilities planning report has been completed, and the facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA Elizabethtown **County** Hardin

Municipality Elizabethtown

Existing Wastewater Collection/Treatment/Disposal System

System Description: Activated sludge with chlorination

Design Capacity (MGD): 0.08

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	277	112	N.A.
Effluent Limitation	mg/l	20	25	N.A.

Municipal Needs

	1975	1995
Population	512	516
Treatment Facility Design P.E.		600
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	178	10.0
TSS lbs/day	43	12.5
Flow MGD	0.05	0.06

Effluent Receiving Stream Ditch to Ohio River

7-Day, 10-Year Low Flow (cfs) 12,610

Selected Alternate: Upgrading existing facility, package plant

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 227,392.00 Community's Share $ 58,348.00
Annual Operation and Maintenance Cost $ 7,529.00

Financial Arrangement

Assessed Valuation (1974) $1,108,000.00
Annual Family Median Income 1974 $ 7,201.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 10,930.00
Number of Users 192 Monthly User's Charges $ 4.74 /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $53,000.00

Comments

The Elizabethtown facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Rosiclare
County Hardin
Municipality Rosiclare

Existing Wastewater Collection/Treatment/Disposal System

System Description: Primary

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	194	96	N.A.
Effluent Limitation	mg/l	20	25	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	1,433	1,479	BOD-5 lbs/day	242	25
Treatment Facility Design P.E.			TSS lbs/day	120	31
Time Schedule for the Project	1982		Flow MGD	0.15	0.148

Effluent Receiving Stream Unnamed Creek to Ohio River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $3,858,000.00
Annual Family Median Income 1974 $8,582.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $ 68,000.00

Comments

The Rosiclare facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Ava County Jackson

Municipality Ava

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.07

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	31	27	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	759	768	BOD-5 lbs/day	10.4	6.7
Treatment Facility Design P.E.		800	TSS lbs/day	9.0	8.0
Time Schedule for the Project		1983	Flow MGD	0.04	0.08

Effluent Receiving Stream Rattlesnake Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Utilizing existing lagoon, add 2-cell lagoon with sand filter and chlorination.

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 141,800.00 Community's Share $39,200.00

Annual Operation and Maintenance Cost $ 6,400.00

Financial Arrangement

Assessed Valuation (1974) $957,000.00

Annual Family Median Income 1974 $ 8,283.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 8,685.00

Number of Users 292 Monthly User's Charges $ 2.48 /household

Bond Indebtness 1974 $____ Water $____ Sewer $____

Water/Sewer $ 138,000.00

Comments

The Ava MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Campbell Hill

County Jackson

Municipality Campbell Hill

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.03

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	45	55	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	318	330	BOD-5 lbs/day	12	2.92
Treatment Facility Design P.E.		350	TSS lbs/day	15	3.5
Time Schedule for the Project		1983	Flow MGD	0.032	0.04

Effluent Receiving Stream Unnamed Trib. to Cox Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Utilizing existing lagoon, add 2-cell lagoon with sand filter and chlorination

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 155,100.00 Community's Share $43,275.00
Annual Operation and Maintenance Cost $ 4,900.00

Financial Arrangement

Assessed Valuation (1974) $480,000.00
Annual Family Median Income 1974 $ 7,055.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 7,422.00
Number of Users 143 Monthly User's Charges $ 4.33 /household
Bond Indebtness 1974 $ Water $ Sewer $9,000.00
Water/Sewer $68,000.00

Comments

The MNA report on Campbell Hill FPA is available

MUNICIPAL NEEDS DATA SHEET

FPA Carbondale
County Jackson
Municipality Carbondale

Existing Wastewater Collection/Treatment/Disposal System

System Description: Activated sludge, contact stabilization, chlorination, T.F.

Design Capacity (MGD): 4.0

			BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.W.	21	74	N.A.
		S.E.	6	14	N.A.
Effluent Limitation	mg/l	N.W.	20	25	N.A.
		S.E.	10	12	N.A.

Municipal Needs

	1975	1995
Population	27,382	32,450

Treatment Facility Design P.E. 48,650
Time Schedule for the Project 1977

Waste Loads		1975	1995
BOD-5 lbs/day	N.W.	87.6	365
	S.E.	150.4	284
TSS lbs/day	N.W.	309.8	365
	S.E.	371.3	340
Flow MGD	N.W.	0.5	1.46
	S.E.	3.18	3.40

Effluent Receiving Stream Crab Orchard Creek - Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0- - 35.0

Selected Alternate: N.W. Plant - Trickling filter, activated sludge, industrial pre-treatment and effluent discharge to Big Muddy River. S.E. Plant - Activated sludge, filtration and effluent discharge to Crab Orchard Creek.

Substantial Human Habitation Y
Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 4,407,000.00 Community's Share $
Annual Operation and Maintenance Cost $335,000.00

Financial Arrangement

Assessed Valuation (1974) $54,883,000.00
Annual Family Median Income 1974 $
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users
Monthly User's Charges $ /household
Bond Indebtness 1974 $
Water $
Sewer $
Water/Sewer $12,414,000.00

Comments

The Carbondale facilities planning report has been completed. Presently N.W. treatment facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA DeSoto County Jackson

Municipality DeSoto

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.15

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	40	99	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	1,064	1,570	BOD-5 lbs/day	21.0	13
Treatment Facility Design P.E.			TSS lbs/day	52	16
Time Schedule for the Project		1983	Flow MGD	0.063	0.157

Effluent Receiving Stream Unnamed trib. to Little Muddy

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $____ Community's Share $____
Annual Operation and Maintenance Cost $____

Financial Arrangement

Assessed Valuation (1974) $936,000.00
Annual Family Median Income 1974 $ 9,649.00
Annual Cost Debt Service (5% - 40 years) + O&M = $____
Number of Users ____ Monthly User's Charges $____/household
Bond Indebtness 1974 $____ Water $ 96,000 Sewer $162,000.00
Water/Sewer $____

Comments

The DeSoto's facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Elkville

County Jackson

Municipality Dowell

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD): Malfunctioning on-site disposal facilities

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A..

Municipal Needs

	1975	1995
Population	423	362
Treatment Facility Design P.E.		450
Time Schedule for the Project		1978

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	.036

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Construction of sewer system, sewage will be pumped to Elkville

Substantial Human Habitation $\boxed{\text{Y}}$ Cost Effectiveness $\boxed{\text{Y}}$

Availability of Land for Waste Treatment Facilities $\boxed{\text{Y}}$

Cost Analysis

Total Capital Cost $ 930,000.00 Community's Share $ 292,500.00

Annual Operation and Maintenance Cost $10,000.00

Financial Arrangement

Assessed Valuation (1974) $401,000.00

Annual Family Median Income 1974 $7,300.00

Annual Cost Debt Service (5% - 40 years) + O&M = $27,047.00

Number of Users 189 Monthly User's Charges $ 11.93 /household

Bond Indebtness 1974 $____ Water $119,000 Sewer $____

Water/Sewer $____

Comments

The Elkville facilities planning report has been completed. The Village of Dowell has received state health hazard grant for waste-water collection and treatment facilities construction works.

MUNICIPAL NEEDS DATA SHEET

FPA Elkville **County** Jackson

Municipality Elkville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Imhoff tank, trickling filter

Design Capacity (MGD): 0.1

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	32	30	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	904	854	BOD-5 lbs/day	21.3	11.7
Treatment Facility Design P.E.		1,400	TSS lbs/day	4.6	14.0
Time Schedule for the Project		1980	Flow MGD	0.08	0.14

Effluent Receiving Stream Six Mile Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Regionalized treatment plant including Dowell; aerated lagoons, algae removal

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $360,000.00 Community's Share $90,000.00
Annual Operation and Maintenance Cost $30,000.00

Financial Arrangement

Assessed Valuation (1974)$1,085,000.00
Annual Family Median Income 1974 $9,954.00
Annual Cost Debt Service (5% - 40 years) + O&M = $35,245.00
Number of Users 295 Monthly User's Charges $ 9.96 /household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $______

Comments

The Elkville facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Gorham

County Jackson

Municipality Gorham

Existing Wastewater Collection/Treatment/Disposal System

System Description: 3-stage lagoon

Design Capacity (MGD): 0.08

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	25	62	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	354	326	BOD-5 lbs/day	6.3	8.2
Treatment Facility Design P.E.		750	TSS lbs/day	15.6	8.2
Time Schedule for the Project		1983	Flow MGD	0.03	0.033

Effluent Receiving Stream Worthen Bayou

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Lagoon improvement (liner) and chlorine contact tank addition

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 115,000.00 Community's Share $ 28,750.00
Annual Operation and Maintenance Cost $ 3,200.00

Financial Arrangement

Assessed Valuation (1974) $454,000.00
Annual Family Median Income 1974 $ 6,436.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 4,876.00
Number of Users 147 Monthly User's Charges $ 2.76 /household
Bond Indebtness 1974 $ Water $ 66,000 Sewer $ 107,000.00
Water/Sewer $

Comments

The MNA report on Gorham FPA has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Grand Tower
County Jackson
Municipality Grand Tower

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.11

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	34	63	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995
Population	613	440
Treatment Facility Design P.E.		700
Time Schedule for the Project		1983

Waste Loads		1975	1995
BOD-5	lbs/day	14.1	11.0
TSS	lbs/day	26.3	11.0
Flow	MGD	0.05	0.04

Effluent Receiving Stream Ditch to Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Modify existing lagoon by dividing it into 3-cell with sand filter and chlorination.

Substantial Human Habitation Y   Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 159,000.00   Community's Share $39,750.00
Annual Operation and Maintenance Cost $ 4,700.00

Financial Arrangement

Assessed Valuation (1974) $1,364,000.00
Annual Family Median Income 1974 $6,337.00
Annual Cost Debt Service (5% - 40 years) + O&M = $7,017.00
Number of Users 284   Monthly User's Charges $ 2.06 /household
Bond Indebtness 1974 $_________ Water $64,000 Sewer $ 158,000.00
Water/Sewer $_________

Comments

The MNA report for Grand Tower FPA has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Makanda County Jackson

Municipality Makanda

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual Septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995
Population	307	400
Treatment Facility Design P.E.		400
Time Schedule for the Project		1990

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	10.0
TSS lbs/day	N.A.	10.0
Flow MGD	N.A.	0.04

Effluent Receiving Stream Drury Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewer, 3-stage stabilization ponds, chlorination

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 539,000.00 Community's Share $ 128,500.00
Annual Operation and Maintenance Cost $ 5,000.00

Financial Arrangement

Assessed Valuation (1974) $122,000.00
Annual Family Median Income 1974 $5,675.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 12,489.00
Number of Users 80 Monthly User's Charges $ 13.01 /household
Bond Indebtness 1974 $____ Water $____ Sewer $____
Water/Sewer $____

Comments

The MNA report for Makanda FPA has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Murphysboro

County Jackson

Municipality Murphysboro

Existing Wastewater Collection/Treatment/Disposal System

System Description: 2-stage trickling filter, tertiary lagoon

Design Capacity (MGD): 1.36

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	47	24	N.A.
Effluent Limitation	mg/l	20	25	N.A.

Municipal Needs

	1975	1995
Population	10,704	11,500
Treatment Facility Design P.E.		13,600
Time Schedule for the Project		1976

Waste Loads	1975	1995
BOD-5 lbs/day	332.5	222.8
TSS lbs/day	170.1	278.5
Flow MGD	0.85	1.34*

Effluent Receiving Stream Big Muddy River

7-Day, 10-Year Low Flow (cfs) 35.65

Selected Alternate: Extension of Murphysboro Sewer Service area to Harrison

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $1,470,700.00 Community's Share $ 367,675.00
Annual Operation and Maintenance Cost $ 35,000.00

Financial Arrangement

Assessed Valuation (1974) $19,277,000.00
Annual Family Median Income 1974 $ 10,616.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 56,428.00
Number of Users 530 (Harrison Area) Monthly User's Charges $ 8.87 /household
Bond Indebtness 1974 $ ____ Water $ ____ Sewer $ ____
Water/Sewer $3,425,000.00

Comments

The MNA report on Murphysboro has been completed. This report basically analizes the Harrison area, which is located outside the city of Murphysboro. *The waste load estimation is based on Murphysboro population plus the Harrison area.

MUNICIPAL NEEDS DATA SHEET

FPA Vergennes
County Jackson
Municipality Vergennes

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995
Population	335	365
Treatment Facility Design P.E.		365
Time Schedule for the Project		1988

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	9.13
TSS lbs/day	N.A.	9.13
Flow MGD	N.A.	0.04

Effluent Receiving Stream Tributary to Beaucoup Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Sewer gravity system, lagoon system

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $539,000.00 Community's Share $138,504.00
Annual Operation and Maintenance Cost $6,720.00

Financial Arrangement

Assessed Valuation (1974) ______
Annual Family Median Income 1974 $7,402.00
Annual Cost Debt Service (5% - 40 years) + O&M = $14,792.00
Number of Users 140 Monthly User's Charges $ 8.80 /household
Bond Indebtness 1974 $______ Water $57,000 Sewer $______
Water/Sewer $______

Comments

The MNA report on Vergennes has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Belle Rive
County Jefferson
Municipality Belle Rive

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

		BOD-5	TSS	P
Design Capacity (MGD):				
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A..

Municipal Needs

	1975	1995
Population	321	273
Treatment Facility Design P.E.		308
Time Schedule for the Project		1992

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	6.8
TSS lbs/day	N.A.	6.8
Flow MGD	N.A.	0.03

Effluent Receiving Stream Auxier Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewer, stabilization ponds, sand filter

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 645,424.00 Community's Share $ 210,000.00
Annual Operation and Maintenance Cost $ 3,500.00

Financial Arrangement

Assessed Valuation (1974) $275,000.00
Annual Family Median Income 1974 $ 6,011.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 15,739.00
Number of Users 100 Monthly User's Charges $ 13.12 /household
Bond Indebtness 1974 $ Water $ 276,000 Sewer $ -
Water/Sewer $

Comments

The Belle Rive MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Bluford

County Jefferson

Municipality Bluford

Existing Wastewater Collection/Treatment/Disposal System

System Description: 3-stage lagoon, chlorination

Design Capacity (MGD): 0.093

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A..

Municipal Needs

	1975	1995
Population	631	866
Treatment Facility Design P.E.		930
Time Schedule for the Project		1976

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	21.7
TSS lbs/day	N.A.	21.7
Flow MGD	N.A.	0.09

Effluent Receiving Stream Bear Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewer system, 3-stage lagoon with submerged sand filter.

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $790,000.00 Community's Share $ 395,000.00
Annual Operation and Maintenance Cost $ 6,550.00

Financial Arrangement

Assessed Valuation (1974) $1,046,000.00
Annual Family Median Income 1974 $7,046.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 29,571.00
Number of Users 220 Monthly User's Charges $ 11.20 /household
Bond Indebtness 1974 $ Water $108,000 Sewer $ -
Water/Sewer $

Comments

The Village of Bluford constructed the wastewater collection and treatment Facilities in 1976.

MUNICIPAL NEEDS DATA SHEET

FPA Rend Lake - East
County Jefferson
Municipality Bonnie

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	334	430	BOD-5 lbs/day	N.A.	10.8
Treatment Facility Design P.E.		500	TSS lbs/day	N.A.	10.8
Time Schedule for the Project		1977	Flow MGD	N.A.	0.04

Effluent Receiving Stream Trib. to Rend Lake

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewer system, 3-cell lagoon with sand filter

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 930,676.00 Community's Share $ 232,669.00
Annual Operation and Maintenance Cost $ 8,375.00

Financial Arrangement

Assessed Valuation (1974) $305,000.00
Annual Family Median Income 1974 $ 7,812.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 21,935.00
Number of Users 146 Monthly User's Charges $ 12.52 /household
Bond Indebtness 1974 $ Water $109,000 Sewer $ -
Water/Sewer $

Comments

The Rend-Lake East Facilities planning report has been completed, and the Facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA Dix

County Jefferson

Municipality Dix

Existing Wastewater Collection/Treatment/Disposal System

System Description: 3-stage lagoon, chlorination

Design Capacity (MGD): 0.025

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	19	25	N.A.
Effluent Limitation	mg/l	30	30	0.05.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	173	193	BOD-5 lbs/day	2.6	4.8
Treatment Facility Design P.E.			TSS lbs/day	3.5	4.8
Time Schedule for the Project		1983	Flow MGD	0.0167	0.019

Effluent Receiving Stream Casey Fork

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $294,000.00
Annual Family Median Income 1974 $ 5,866.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $

Comments

The Dix facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Rend Lake - East　County Jefferson

Municipality Ina

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	333	405	BOD-5 lbs/day	N.A.	10.1
Treatment Facility Design P.E.		500	TSS lbs/day	N.A.	10.1
Time Schedule for the Project		1977	Flow MGD	N.A.	0.04

Effluent Receiving Stream Trib. to Rend Lake

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewar, 3-cell lagoon with sand filter

Substantial Human Habitation Y　Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 941,039.00　Community's Share $235,260.00
Annual Operation and Maintenance Cost $8,375.00

Financial Arrangement

Assessed Valuation (1974) $331,000.00
Annual Family Median Income 1974 $ 5,709.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 22,086.00
Number of Users 179　Monthly User's Charges $ 10.28 /household
Bond Indebtness 1974 $______　Water $______　Sewer $______
Water/Sewer $______

Comments

The Rend Lake-East facilities planning report has been completed, and the facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA Mt. Vernon

County Jefferson

Municipality Mt. Vernon

Existing Wastewater Collection/Treatment/Disposal System

System Description: Trickling filter, clarifiers, tertiary lagoon, chlorination

Design Capacity (MGD): 2.0

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	13	24	4.7
Effluent Limitation	mg/l	10	12	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	16,759	21,159	BOD-5 lbs/day	108.4	176
Treatment Facility Design P.E.			TSS lbs/day	280.2	212
Time Schedule for the Project		1976	Flow MGD	1.0	2.12

Effluent Receiving Stream Casey Fork

7-Day, 10-Year Low Flow (cfs) 1.3

Selected Alternate: Tertiary treatment facilities, phosphorous removal, interceptor sewer.

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities [Y]

Cost Analysis

Total Capital Cost $ 7,059,933.00 Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $45,619,000.00
Annual Family Median Income 1974 $ 8,078.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $3,520,000 Sewer $ 868,000.00
Water/Sewer $

Comments

The Mt. Vernon facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Rend Lake - North

County Jefferson

Municipality Nason

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	0.05

Municipal Needs

	1975	1995
Population	186	226
Treatment Facility Design P.E.		226
Time Schedule for the Project		1986

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	5.7
TSS lbs/day	N.A.	5.7
Flow MGD	N.A.	0.02

Effluent Receiving Stream Rend Lake

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewer, lagoons, sand filter, chlorination.

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 739,284.00 Community's Share $ 220,000.00

Annual Operation and Maintenance Cost $3,242.00

Financial Arrangement

Assessed Valuation (1974) $247,000.00

Annual Family Median Income 1974 $8,129.00

Annual Cost Debt Service (5% - 40 years) + O&M = $16,064.00

Number of Users 80 Monthly User's Charges $ 16.73 /household

Bond Indebtness 1974 $ Water $ Sewer $

Water/Sewer $

Comments

The Rend Lake-North MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Waltonville   County Jefferson

Municipality Waltonville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	381	352	BOD-5 lbs/day	N.A.	8.8
Treatment Facility Design P.E.		750	TSS lbs/day	N.A.	8.8
Time Schedule for the Project		1981	Flow MGD	N.A.	0.035

Effluent Receiving Stream Trib. to Rend Lake

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Sewer system, settling tank with sand filters and chlorination.

Substantial Human Habitation Y   Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 561,080.00   Community's Share $ 281,134.00
Annual Operation and Maintenance Cost $ 6,500.00

Financial Arrangement

Assessed Valuation (1974) $498,000.00
Annual Family Median Income 1974 $ 5,264.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 22,884.00
Number of Users 172   Monthly User's Charges $ 11.09 /household
Bond Indebtness 1974 $______   Water $______   Sewer $______
Water/Sewer $______

Comments

The Waltonville facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Woodlawn
County Jefferson
Municipality Woodlawn

Existing Wastewater Collection/Treatment/Disposal System

System Description: Settling tank, sand filters, chlorination

Design Capacity (MGD): 0.054

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	23	55	1.3
Effluent Limitation	mg/l	10	12	0.05

Municipal Needs

	1975	1995
Population	310	318
Treatment Facility Design P.E.		537
Time Schedule for the Project		1975

Waste Loads	1975	1995
BOD-5 lbs/day	1.9	3
TSS lbs/day	4.6	3
Flow MGD	0.01	0.03

Effluent Receiving Stream Unnamed Creek to Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ 351,357.00 Community's Share $ 87,839.00
Annual Operation and Maintenance Cost $5,400.00

Financial Arrangement

Assessed Valuation (1974) $339,000.00
Annual Family Median Income 1974 $ 5,503.00
Annual Cost Debt Service (5% - 40 years) + O&M = $10,519.00
Number of Users 149 Monthly User's Charges $ 5.88 /household
Bond Indebtness 1974 $ Water $ 145,000 Sewer $
Water/Sewer $

Comments

The Woodlawn facilities planning report has been completed, and the facilities have been constructed.

MUNICIPAL NEEDS DATA SHEET

FPA Cutler

County Perry

Municipality Cutler

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.058

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	36	63	N.A.
Effluent Limitation	mg/l	30	30	N.A.-

Municipal Needs	1975	1995
Population	540	650
Treatment Facility Design P.E.		650
Time Schedule for the Project		1983

Waste Loads		1975	1995
BOD-5	lbs/day	15.1	16.3
TSS	lbs/day	26.8	16.3
Flow	MGD	0.051	0.07

Effluent Receiving Stream Pipestone Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Modifying existing lagoon into 3-cell aerated lagoons with sand filter and chlorination

Substantial Human Habitation Y

Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 145,500.00 Community's Share $ 36,375.00

Annual Operation and Maintenance Cost $7,100.00

Financial Arrangement

Assessed Valuation (1974) $352,000.00

Annual Family Median Income 1974 $9,496.00

Annual Cost Debt Service (5% - 40 years) + O&M = $9,220.00

Number of Users 207 Monthly User's Charges $ 3.71 /household

Bond Indebtness 1974 $ Water $ Sewer $

Water/Sewer $ 84,000.00

Comments

The Cutler MNA Report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA DuQuoin
County Perry
Municipality DuQuoin

Existing Wastewater Collection/Treatment/Disposal System

System Description: Trickling filter, intermediate clarifier, trickling filter, final clarifier

Design Capacity (MGD): 1.0

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	32	17	9.45
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs	1975	1995
Population	7,088	8,614
Treatment Facility Design P.E.		
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	186.8	71.8
TSS lbs/day	99.3	86.2
Flow MGD	0.7	0.86

Effluent Receiving Stream Reese Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $12,212,000.00
Annual Family Median Income 1974 $9,609.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $1,130,000.00

Comments

No study is available on DuQuoin FPA.

MUNICIPAL NEEDS DATA SHEET

FPA Pinckneyville **County** Perry

Municipality Pinckneyville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Sedimentation, Biological Oxidation, Tertiary Lagoon

Design Capacity (MGD): 0.75

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	5	12	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	3,519	4,148	BOD-5 lbs/day	12.8	34.6
Treatment Facility Design P.E.			TSS lbs/day	30.0	41.5
Time Schedule for the Project		1983	Flow MGD	0.30	0.41

Effluent Receiving Stream Beacoup Creek

7-Day, 10-Year Low Flow (cfs) 0.41

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $6,376,000.00
Annual Family Median Income 1974 $12,609.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $260,000 Sewer $745,000.00
Water/Sewer $

Comments

The Pinckneyville facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA DuQuoin County Perry

Municipality St. Johns

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l			

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	227	255	BOD-5 lbs/day	N.A.	
Treatment Facility Design P.E.			TSS lbs/day	N.A.	
Time Schedule for the Project		1991	Flow MGD	N.A.	

Effluent Receiving Stream

7-Day, 10-Year Low Flow (cfs)

Selected Alternate:

Substantial Human Habitation Y Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $182,000.00
Annual Family Median Income 1974 $6,817.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users 101 Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $

Comments

No study is available on DuQuoin FPA.

MUNICIPAL NEEDS DATA SHEET

FPA Tamaroa County Perry

Municipality Tamaroa

Existing Wastewater Collection/Treatment/Disposal System

System Description: Three cell lagoon, sand filter

Design Capacity (MGD): 0.14

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.-

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	852	970	BOD-5 lbs/day	N.A.	24.3
Treatment Facility Design P.E.		1,350	TSS lbs/day	N.A.	24.3
Time Schedule for the Project		1977	Flow MGD	N.A.	0.10

Effluent Receiving Stream Unnamed Creek to Little Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewer, 3-cell lagoon with sand filter

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 850,000.00 Community's Share $402,240.00
Annual Operation and Maintenance Cost $4,800.00

Financial Arrangement

Assessed Valuation (1974) $724,000.00
Annual Family Median Income 1974 $6,924.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 28,243.00
Number of Users 310 Monthly User's Charges $ 7.59 /household
Bond Indebtness 1974 $ Water $ 162,000 Sewer $
Water/Sewer $

Comments

The Tamaroa facilities planning report has been completed, and the construction phase has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Willisville County Perry

Municipality Willisville

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): .07

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	40	50	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	730	1,096	BOD-5 lbs/day	24.3	9.0
Treatment Facility Design P.E.		1,200	TSS lbs/day	30.4	11.0
Time Schedule for the Project		1983	Flow MGD	0.073	0.11

Effluent Receiving Stream Tributary to Cox Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Land application (irrigation method)

Substantial Human Habitation ☐ Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 364,000.00 Community's Share $ 91,000.00
Annual Operation and Maintenance Cost $ 18,000.00

Financial Arrangement

Assessed Valuation (1974) $322,000.00
Annual Family Median Income 1974 $ 11,375.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 23,303.00
Number of Users 257 Monthly User's Charges $ 7.56 /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $157,000.00

Comments

The Willisville facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Eddyville

County Pope

Municipality Eddyville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual Septic Tank System

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	30	30	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	143	171	BOD-5 lbs/day	N.A.	4.3
Treatment Facility Design P.E.		171	TSS lbs/day	N.A.	4.3
Time Schedule for the Project		1989	Flow MGD	N.A.	0.02

Effluent Receiving Stream Trib. to Lusk Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Conventional gravity sewer and 3-cell lagoon treatment facilities.

Substantial Human Habitation Y

Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 299,200.00

Community's Share $ 74,800.00

Annual Operation and Maintenance Cost $ 2,500.00

Financial Arrangement

Assessed Valuation (1974) $102,000.00

Annual Family Median Income 1974 $6,171.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 6,859.00

Number of Users 66

Monthly User's Charges $ 8.66 /household

Bond Indebtness 1974 $

Water $ -

Sewer $ -

Water/Sewer $

Comments

The Eddyville MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Golconda

County Pope

Municipality Golconda

Existing Wastewater Collection/Treatment/Disposal System

System Description: Secondary with activated sludge

Design Capacity (MGD): 0.1

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	137.5	186	N.A.
Effluent Limitation	mg/l	20	25	N.A..

Municipal Needs

	1975	1995
Population	944	1,057
Treatment Facility Design P.E.	–	——
Time Schedule for the Project	1983	

Waste Loads	1975	1995
BOD-5 lbs/day	97.5	18
TSS lbs/day	132.0	22
Flow MGD	0.10	0.11

Effluent Receiving Stream Ditch to Ohio River

7-Day, 10-Year Low Flow (cfs) 12,610

Selected Alternate: Existing treatment plant improvements

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities N

Cost Analysis

Total Capital Cost $141,000.00 Community's Share $ 38,850.00

Annual Operation and Maintenance Cost $ 15,000.00

Financial Arrangement

Assessed Valuation (1974) $1,131,000.00

Annual Family Median Income 1974 $6,693.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 17,264.00

Number of Users 350 Monthly User's Charges $ 4.11 /household

Bond Indebtness 1974 $ Water $ - Sewer $ -

Water/Sewer $281,000.00

Comments

The Golconda MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Hamletsburg County Pope

Municipality Hamletsburg

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995
Population	86	78

Treatment Facility Design P.E. 86

Time Schedule for the Project 1994

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	N.A.

Effluent Receiving Stream -

7-Day, 10-Year Low Flow (cfs) -

Selected Alternate: Septic tanks, mound system (cluster)

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $112,000.00 Community's Share $28,000.00

Annual Operation and Maintenance Cost $1,200.00

Financial Arrangement

Assessed Valuation (1974) $85,000.00

Annual Family Median Income 1974 $5,006.00

Annual Cost Debt Service (5% - 40 years) + O&M = $2,832.00

Number of Users 24 Monthly User's Charges $ 9.83 /household

Bond Indebtness 1974 $ Water $ - Sewer $ -

Water/Sewer $

Comments

The Hamletsburg MNA report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Carrier Mills

County Saline

Municipality Carrier Mills

Existing Wastewater Collection/Treatment/Disposal System

System Description: Activated sludge, contact stabilization plant

Design Capacity (MGD): 0.2

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	78	152	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	2,120	2,416
Treatment Facility Design P.E.		
Time Schedule for the Project		1979

Waste Loads	1975	1995
BOD-5 lbs/day	71.1	20.2
TSS lbs/day	139.4	24.2
Flow MGD	0.11	0.24

Effluent Receiving Stream Trib. to South Fork Saline River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $________ Community's Share $________
Annual Operation and Maintenance Cost $________

Financial Arrangement

Assessed Valuation (1974) $2,866,000.00
Annual Family Median Income 1974 $7,867.00
Annual Cost Debt Service (5% - 40 years) + O&M = $________
Number of Users ______ Monthly User's Charges $______/household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $ 335,000.00

Comments

The Carrier Mills facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Eldorado

County Saline

Municipality Eldorado

Existing Wastewater Collection/Treatment/Disposal System

System Description: Single cell stabilization pond

Design Capacity (MGD): 0.36

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	29	33	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	4,700	5,584
Treatment Facility Design P.E.		6,675
Time Schedule for the Project		1978

Waste Loads	1975	1995
BOD-5 lbs/day	88	46.6
TSS lbs/day	98.2	55.9
Flow MGD	0.36	0.56

Effluent Receiving Stream Unnamed Creek to Middle Fork Saline River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Regionalized plant with activated sludge, BRD, rapid sand filter, chlorination, sludge drying bed, inflow removal

Substantial Human Habitation ☐ Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $2,835,634.00 Community's Share $ 708,909.00

Annual Operation and Maintenance Cost $75,953.00

Financial Arrangement

Assessed Valuation (1974) $8,136,000.00

Annual Family Median Income 1974 $7,508.00

Annual Cost Debt Service (5% - 40 years) + O&M = $117,268.00

Number of Users 1,871 Monthly User's Charges $ 5.22 /household

Bond Indebtness 1974 $ Water $ Sewer $ 325,000.00

Water/Sewer $

Comments

The Eldorado facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Galatia

County Saline

Municipality Galatia

Existing Wastewater Collection/Treatment/Disposal System

System Description: Contact stabilization with tertiary filtration

Design Capacity (MGD): 0.16

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995
Population	816	828
Treatment Facility Design P.E.		1,600
Time Schedule for the Project		1976

Waste Loads	1975	1995
BOD-5 lbs/day	-	7.0
TSS lbs/day	-	8.0
Flow MGD	-	0.08

Effluent Receiving Stream Gassaway Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Sewer system, contact stabilization with tertiary filtration

Substantial Human Habitation ☒ Y

Cost Effectiveness ☒ Y

Availability of Land for Waste Treatment Facilities ☒ Y

Cost Analysis

Total Capital Cost $ 626,000.00 Community's Share $______

Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) $1,324,000.00

Annual Family Median Income 1974 $9,109.00

Annual Cost Debt Service (5% - 40 years) + O&M = $______

Number of Users ______ Monthly User's Charges $ 7.50 /household

Bond Indebtness 1974 $______ Water $______ Sewer $______

Water/Sewer $______

Comments

The Galatia facilities planning report has been completed, and the facilities have been constructed.

MUNICIPAL NEEDS DATA SHEET

FPA Harrisburg

County Saline

Municipality Harrisburg

Existing Wastewater Collection/Treatment/Disposal System

System Description: Contact stabilization, chlorination, aerated lagoon

Design Capacity (MGD): 1.25

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	10	15	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	9,857	10,950	BOD-5 lbs/day	82.2	91.3
Treatment Facility Design P.E.			TSS lbs/day	123.3	109.6
Time Schedule for the Project		1981	Flow MGD	1.0	1.1

Effluent Receiving Stream Pankey Branch

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $22,042,000.00
Annual Family Median Income 1974 $8,919.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $514,000 Sewer $740,000.00
Water/Sewer $

Comments

The Harrisburg facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Harrisburg * County Saline

Municipality Muddy

Existing Wastewater Collection/Treatment/Disposal System

System Description: Polishing pond, activated sludge with chlorination

Design Capacity (MGD): 0.045

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	-	-	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	109	144
Treatment Facility Design P.E.		
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	-	1.2
TSS lbs/day	-	1.4
Flow MGD	-	0.01

Effluent Receiving Stream Ditch to Middle Fork Saline

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $247,000.00
Annual Family Median Income 1974 $ 9,604.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $

Comments

The Harrisburg facilities planning report is in process. The Muddy's collection and treatment facilities were constructed in 1976.

MUNICIPAL NEEDS DATA SHEET

FPA Raleigh County Saline

Municipality Raleigh

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	398	498
Treatment Facility Design P.E.		350
Time Schedule for the Project		1984

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	4.0
TSS lbs/day	N.A.	5.0
Flow MGD	N.A.	0.05

Effluent Receiving Stream Trib. to Middle Fork Saline River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Aeration unit, filtration, disinfection, conventional gravity sewer system

Substantial Human Habitation [Y] Cost Effectiveness ☐

Availability of Land for Waste Treatment Facilities [Y]

Cost Analysis

Total Capital Cost $738,000.00 Community's Share $__________

Annual Operation and Maintenance Cost $__________

Financial Arrangement

Assessed Valuation (1974) $373,000.00

Annual Family Median Income 1974 $ 10,410.00

Annual Cost Debt Service (5% - 40 years) + O&M = $__________

Number of Users _______ Monthly User's Charges $________/household

Bond Indebtness 1974 $________ Water $______ Sewer $______

Water/Sewer $__________

Comments

The Raleigh facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Stonefort   County Saline

Municipality Stonefort

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	335	450	BOD-5 lbs/day	N.A.	N.A.
Treatment Facility Design P.E.			TSS lbs/day	N.A.	N.A.
Time Schedule for the Project	No Action		Flow MGD	N.A.	N.A.

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Municipal septic tank cleaning service

Substantial Human Habitation Y   Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ N.A.   Community's Share $ N.A.
Annual Operation and Maintenance Cost $ 6,000.00

Financial Arrangement

Assessed Valuation (1974) $423,000.00
Annual Family Median Income 1974 $8,193.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ -
Number of Users 162   Monthly User's Charges $ 3.09 /household
Bond Indebtness 1974 $ ______   Water $73,000   Sewer $ ______
Water/Sewer $ ______

Comments

The MNA report on Stonefort FPA is available.

MUNICIPAL NEEDS DATA SHEET

FPA Hurst

County Williamson

Municipality Bush

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD): N.A.

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995
Population	345	300
Treatment Facility Design P.E.		466
Time Schedule for the Project		1982

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	0.03

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Sewer system, sewage will be pumped to Hurst Plant

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $69,400.00 Community's Share $ 17,350.00
Annual Operation and Maintenance Cost $ 3,900.00

Financial Arrangement

Assessed Valuation (1974) $206,000.00
Annual Family Median Income 1974 $ 5,301.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 4,911.00
Number of Users 152 Monthly User's Charges $ 2.69 /household
Bond Indebtness 1974 $____ Water $____ Sewer $____
Water/Sewer $____

Comments

The Hurst facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Carterville

County Williamson

Municipality Cambria

Existing Wastewater Collection/Treatment/Disposal System

System Description: Three cell lagoon, intermittent sand filter

Design Capacity (MGD): 0.16

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	6	21	N.A.
Effluent Limitation	mg/l	10	12	0.05-

Municipal Needs

	1975	1995
Population	854	1,119
Treatment Facility Design P.E.		
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	2.5	9
TSS lbs/day	8.8	11
Flow MGD	0.05	0.11

Effluent Receiving Stream Unnamed Creek to Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $811,000.00
Annual Family Median Income 1974 $5,945.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $114,000 Sewer $352,000.00
Water/Sewer $

Comments

The Carterville facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Carterville County Williamson

Municipality Carterville

Existing Wastewater Collection/Treatment/Disposal System

System Description: Primary clarifier, activated sludge, final clarifier, chlorination

Design Capacity (MGD): 0.3

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	68	74	-
Effluent Limitation	mg/l	4	5	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	3,278	4,317	BOD-5 lbs/day	141.5	36
Treatment Facility Design P.E.			TSS lbs/day	154.9	43
Time Schedule for the Project		1981	Flow MGD	0.251	0.43

Effluent Receiving Stream Oak Creek to Crab Orchard Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $__________ Community's Share $__________

Annual Operation and Maintenance Cost $__________

Financial Arrangement

Assessed Valuation (1974) $5,772,000.00

Annual Family Median Income 1974 $9,788.00

Annual Cost Debt Service (5% - 40 years) + O&M = $__________

Number of Users ______ Monthly User's Charges $________/household

Bond Indebtness 1974 $________ Water $______ Sewer $______

Water/Sewer $ 249,000.00

Comments

The Carterville facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Colp County Williamson

Municipality Colp

Existing Wastewater Collection/Treatment/Disposal System

System Description: Three-cell lagoon, chlorination

Design Capacity (MGD): 0.045

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	3	60	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	280	318
Treatment Facility Design P.E.		318
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	0.7	3
TSS lbs/day	13.5	3
Flow MGD	0.027	0.032

Effluent Receiving Stream Hurricane Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Addition of a sand filter and other improvements

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 131,300.00 Community's Share $ 32,825.00
Annual Operation and Maintenance Cost $ 2,000.00

Financial Arrangement

Assessed Valuation (1974) $201,000.00
Annual Family Median Income 1974 $ 7,324.00
Annual Cost Debt Service (5% - 40 years) + O&M = $3,913.00
Number of Users 101 Monthly User's Charges $ 3.23 /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $ 234,000.00

Comments

The Colp MNA report is available.

MUNICIPAL NEEDS DATA SHEET

FPA Carterville
County Williamson
Municipality Crainville

Existing Wastewater Collection/Treatment/Disposal System

System Description: 4-stage lagoon, chlorination

Design Capacity (MGD): 0.11

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	18	23	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995
Population	584	745
Treatment Facility Design P.E.		
Time Schedule for the Project		1983

Waste Loads	1975	1995
BOD-5 lbs/day	3.0	6
TSS lbs/day	3.8	7
Flow MGD	0.02	0.075

Effluent Receiving Stream Hurricane Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $ Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $1,170,000.00
Annual Family Median Income 1974 $5,887.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $ 480,000.00

Comments

The Carterville facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Creal Springs County Williamson

Municipality Creal Springs

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.1

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	31	28	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	852	824	BOD-5 lbs/day	25.8	7
Treatment Facility Design P.E.		1,000	TSS lbs/day	23.4	8
Time Schedule for the Project		1980	Flow MGD	0.1	0.082

Effluent Receiving Stream Cana Creek to South Fork Saline

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Two additional waste stabilization ponds

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $132,000.00 Community's Share $33,000.00
Annual Operation and Maintenance Cost $4,000.00

Financial Arrangement

Assessed Valuation (1974) $713,000.00
Annual Family Median Income 1974 $9,173.00
Annual Cost Debt Service (5% - 40 years) + O&M = $5,923.00
Number of Users 275 Monthly User's Charges $ 1.79 /household
Bond Indebtness 1974 $ Water $93,000 Sewer $185,000.00
Water/Sewer $

Comments

The Creal Springs facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Herrin
County Williamson
Municipality Energy

Existing Wastewater Collection/Treatment/Disposal System

System Description: One-cell lagoon

Design Capacity (MGD): 0.1

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	38	79	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	1,030	1,308	BOD-5 lbs/day	15.8	11.0
Treatment Facility Design P.E.			TSS lbs/day	32.8	13.0
Time Schedule for the Project		1983	Flow MGD	0.05	0.131

Effluent Receiving Stream Unnamed pit to Hurricane Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $______ Community's Share $______
Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) $1,475,000.00
Annual Family Median Income 1974 $12,253.00
Annual Cost Debt Service (5% - 40 years) + O&M = $______
Number of Users ______ Monthly User's Charges $______/household
Bond Indebtness 1974 $______ Water $______ Sewer $______
Water/Sewer $ 91,000.00

Comments

The Herrin facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Herrin County Williamson

Municipality Herrin

Existing Wastewater Collection/Treatment/Disposal System

System Description: Primary settling, trickling filter, secondary settling

Design Capacity (MGD): 1.2

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	36	29	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	10,104	12,280	BOD-5 lbs/day	289.8	102.4
Treatment Facility Design P.E.			TSS lbs/day	232.2	122.9
Time Schedule for the Project		1979	Flow MGD	0.96	1.23

Effluent Receiving Stream Hurricane Creek

7-Day, 10-Year Low Flow (cfs) 0.31

Selected Alternate:

Substantial Human Habitation ☐ Cost Effectiveness ☐
Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $______ Community's Share $______
Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) $22,353,000.00
Annual Family Median Income 1974 $10,002.00
Annual Cost Debt Service (5% - 40 years) + O&M = $______
Number of Users ______ Monthly User's Charges $______/household
Bond Indebtness 1974 $______ Water $ 607,000 Sewer $ 80,000.00
Water/Sewer $______

Comments

The Herrin facilities planning report is in process.

MUNICIPAL NEEDS DATA SHEET

FPA Hurst

County Williamson

Municipality Hurst

Existing Wastewater Collection/Treatment/Disposal System

System Description: Imhoff tank, trickling filter, final settling

Design Capacity (MGD): 0.1

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	36	30	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995
Population	969	1,099

Treatment Facility Design P.E. 2,000

Time Schedule for the Project 1977

Waste Loads	1975	1995
BOD-5 lbs/day	27.1	16.7
TSS lbs/day	22.5	20.0
Flow MGD	0.09	0.2

Effluent Receiving Stream Unnamed Ditch to Big Muddy River

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: New regionalized treatment facilities consisting of a conventional 3-cell waste stabilization pond system

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 356,000.00 Community's Share $ 92,200.00
Annual Operation and Maintenance Cost $ 6,000.00

Financial Arrangement

Assessed Valuation (1974) $998,000.00
Annual Family Median Income 1974 $ 6,993.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 11,373.00
Number of Users 381 Monthly User's Charges $ 2.49 /household
Bond Indebtness 1974 $ Water $ Sewer $
Water/Sewer $ 330,000.00

Comments

The Hurst facilities plan Step I has been completed, and is in Step II of the 201.

MUNICIPAL NEEDS DATA SHEET

FPA Johnston City **County** Williamson

Municipality Johnston City

Existing Wastewater Collection/Treatment/Disposal System

System Description: Single-cell lagoon

Design Capacity (MGD): 0.4

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	28	44	N.A.
Effluent Limitation	mg/l	10	12	N.A..

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	3,943	4,006	BOD-5 lbs/day	93.4	50.4
Treatment Facility Design P.E.		6,037	TSS lbs/day	146.8	60.4
Time Schedule for the Project		1978	Flow MGD	0.40	0.604

Effluent Receiving Stream Lake Creek

7-Day, 10-Year Low Flow (cfs) 0.26

Selected Alternate: Sewer system in FPA included White Ash, inflow removal, activated sludge, BRD, tertiary filters, chlorination

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $3,182,458.00 Community's Share $795,614.00
Annual Operation and Maintenance Cost $ 82,194.00

Financial Arrangement

Assessed Valuation (1974) $5,081,000.00
Annual Family Median Income 1974 $ 7,910.00
Annual Cost Debt Service (5% - 40 years) + O&M = $128,562.00
Number of Users 1,611 Monthly User's Charges $ 6.65 /household
Bond Indebtness 1974 $______ Water $______ Sewer $220,000.00
Water/Sewer $______

Comments

The Johnston City facilities planning report has been completed.

MUNICIPAL NEEDS DATA SHEET

FPA Marion
County Williamson
Municipality Marion

Existing Wastewater Collection/Treatment/Disposal System

System Description: Trickling filter, tertiary treatment, disinfection

Design Capacity (MGD): 1.8

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	28	48	7.7
Effluent Limitation	mg/l	4	5	0.05

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	13,724	17,589	BOD-5 lbs/day	165	83.4
Treatment Facility Design P.E.	25,000		TSS lbs/day	281	104.3
Time Schedule for the Project	1977		Flow MGD	0.7	2.5

Effluent Receiving Stream Crab Orchard Creek

7-Day, 10-Year Low Flow (cfs) 0.54

Selected Alternate: Advance tertiary treatment facilities

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 2,990,000.00 Community's Share $
Annual Operation and Maintenance Cost $

Financial Arrangement

Assessed Valuation (1974) $31,323,000.00
Annual Family Median Income 1974 $ 14,303.00
Annual Cost Debt Service (5% - 40 years) + O&M = $
Number of Users Monthly User's Charges $ /household
Bond Indebtness 1974 $ Water $1,045,000 Sewer $351,000.00
Water/Sewer $

Comments

The Marion facilities report has been completed, and the facilities are under construction.

MUNICIPAL NEEDS DATA SHEET

FPA Pittsburg **County** Williamson

Municipality Pittsburg

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD): Septic systems are malfunctioning

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	10	12	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	520	449	BOD-5 lbs/day	N.A.	4
Treatment Facility Design P.E.		520	TSS lbs/day	N.A.	5
Time Schedule for the Project		1979	Flow MGD	N.A.	0.045

Effluent Receiving Stream Trib. to Crab Orchard Creek

7-Day, 10-Year Low Flow (cfs) -0-

Selected Alternate: Gravity sewer, 3-stage stabilization ponds, sand filter, chlorination

Substantial Human Habitation Y Cost Effectiveness Y
Availability of Land for Waste Treatment Facilities Y

Cost Analysis

Total Capital Cost $ 928,000.00 Community's Share $ 247,000.00
Annual Operation and Maintenance Cost $ 6,500.00

Financial Arrangement

Assessed Valuation (1974) $452,000.00
Annual Family Median Income 1974 $ 6,914.00
Annual Cost Debt Service (5% - 40 years) + O&M = $ 20,895.00
Number of Users 210 Monthly User's Charges $ 8.29 /household
Bond Indebtness 1974 $ Water $376,000 Sewer $
Water/Sewer $

Comments

The Pittsburg MNA report is available. The community is on State Health Hazard Grant list for FY 78.

MUNICIPAL NEEDS DATA SHEET

FPA Marion

County Williamson

Municipality Spillertown

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995	Waste Loads	1975	1995
Population	312	461	BOD-5 lbs/day	N.A.	N.A.
Treatment Facility Design P.E.			TSS lbs/day	N.A.	N.A.
Time Schedule for the Project		1980	Flow MGD	N.A.	2.19

Effluent Receiving Stream -

7-Day, 10-Year Low Flow (cfs) -

Selected Alternate: Sewer system and sewage pumping to regionalized treatment facilities in Marion

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities ☐

Cost Analysis

Total Capital Cost $______ Community's Share $______

Annual Operation and Maintenance Cost $______

Financial Arrangement

Assessed Valuation (1974) $267,000.00

Annual Family Median Income 1974 $ 15,856.00

Annual Cost Debt Service (5% - 40 years) + O&M = $______

Number of Users ______ Monthly User's Charges $______/household

Bond Indebtness 1974 $______ Water $______ Sewer $______

Water/Sewer $______

Comments

MUNICIPAL NEEDS DATA SHEET

FPA Johnston City **County** Williamson

Municipality Whiteash

Existing Wastewater Collection/Treatment/Disposal System

System Description: Individual septic tank system

Design Capacity (MGD):

		BOD-5	TSS	P
Effluent Quality (1975)	mg/l	N.A.	N.A.	N.A.
Effluent Limitation	mg/l	N.A.	N.A.	N.A.

Municipal Needs

	1975	1995
Population	192	241

Treatment Facility Design P.E. 963 (Included Fergestown)

Time Schedule for the Project 1987

Waste Loads	1975	1995
BOD-5 lbs/day	N.A.	N.A.
TSS lbs/day	N.A.	N.A.
Flow MGD	N.A.	.024

Effluent Receiving Stream N.A.

7-Day, 10-Year Low Flow (cfs) N.A.

Selected Alternate: Sewer system, transport sewer to Johnston City's plant

Substantial Human Habitation Y Cost Effectiveness Y

Availability of Land for Waste Treatment Facilities N.A.

Cost Analysis

Total Capital Cost $ 331,020.00 Community's Share $ 82,755.00

Annual Operation and Maintenance Cost $ 4,930.00

Financial Arrangement

Assessed Valuation (1974) $126,000.00

Annual Family Median Income 1974 $ 9,885.00

Annual Cost Debt Service (5% - 40 years) + O&M = $ 9,753.00

Number of Users 69 Monthly User's Charges $ 11.78 /household

Bond Indebtness 1974 $______ Water $______ Sewer $______

Water/Sewer $______

Comments

The Johnston City facilities planning report has been completed.

APPENDIX B

MUNICIPAL FACILITIES DATA

Table 1
FACILITY PLANNING AREAS IN 208 AREA

1. Ava
2. Belle Prairie City*
3. Belle Rive*
4. Benton, West City*
5. Bluford
6. Broughton*
7. Campbell Hill
8. Carbondale
9. Carrier Mills
10. Carterville, Cambria, Crainville
11. Cave-In-Rock [x]
12. Christopher, North City*
    Urbain,* Valier
13. Colp
14. Creal Springs
15. Cutler
16. Dahlgren [x]
17. DeSoto
18. Dix
19. DuQuoin, St. John*
20. Eddyville*
21. Eldorado
22. Elizabethtown
23. Elkville, Dowell*
24. Equality*
25. Freeman Spur*
26. Galatia
27. Golconda
28. Gorham
29. Grand Tower
30. Hamletsburg*
31. Hanaford*
32. Harrisburg, Muddy
33. Herrin, Energy
34. Hurst, Bush*
35. Johnston City, Whiteash*
36. Junction*
37. Lake of Egypt*[1]
38. Macedonia*
39. Makanda*
40. Marion
41. McLeansboro
42. Mt. Vernon
43. Murphysboro
44. New Haven*
45. Omaha*
46. Pinckneyville
47. Pittsburg*
48. Raleigh*
49. Rend Lake-East,* Ewing,* Ina,[x]
    Bonnie[x]
50. Rend Lake-North,* Nason*
51. Ridgeway
52. Rosiclare
53. Royalton
54. Sesser
55. Shawnnetown, Old Shawneetown*
56. Stonefort*
57. Tamaroa
58. Thompsonville
59. Vengennes*
60. Waltonville*
61. West Frankfort, Orient*
62. West Rend Lake*[1]
63. Willisville
64. Woodlawn
65. Zeigler

NOTE: First Community is FPA lead community.

Legend

* Community in FPA without sewage system.

*[1] No municipality exist in FPA.

x Sewage system under construction.

Table 2
ALTERNATIVES CONSIDERED FOR MUNICIPAL WASTEWATER PLANNING NEEDS STUDIES

			Collection System	Cost $			Treatment System	Cost $		On Site Disposal		Cost $		
FPA	Design P.E.	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	# of System
Ava +	800 P.E. 80,000 gpd					1	Abandon existing facility and build new mechanical plant.	309,600	8,200					
						2	Modify existing lagoon into 3-cell aerated lagoon, sand filter, disinfection.	157,900	8,200					
						3*	Utilize existing lagoon and build two-celled lagoon, sand filter, disinfection.	141,800	6,400					
						4	Provide disinfection, and land application.	-	-					
Belle Prairie	49	1	Conventional Collection system.	64,400	100	1	Stabilization ponds with submerged sand filter.	78,500	3,400	1*	"Cluster" mound system	97,000	1,000	20
		2	Small diameter gravity sewer system.	24,100	700	2	Recirculating intermittent sand filter with septic tanks.	63,300	4,400					
						3	Lagoon treatment spray irrigation.	185,300	3,300					
Belle Rive	308	1 *	Conventional gravity sewer system.	520,166	--	1	Package plant, land application.	266,683	4,096	1	Septic tank system	189,000	2,110	100
						2	Single cell lagoon, holding pond, land application.	281,364	2,498					
						3	Package plant with tertiary filters.	111,000	7,982					
						4	Septic tank-intermittent sand filter.	150,370	3,322					
						5 *	2-cell lagoon-submerged sand filter.	79,600	3,500					

Table 2 (continued)

FPA	Design P.E.	Alt. #	Collection System	Cost $		Alt. #	Treatment System	Cost $		On Site Disposal		Cost $		# of System
			Type	Capital	O & M		Type	Capital	O & M	Alt. #	Type	Capital	O & M	
Broughton	370	1	Conventional Collection system.	401,700	300	1 *	Stabilization Pond with submerged sand filter.	204,400	5,800	1	"Cluster" mound system.	503,800	5,000	100
		2 *	Small Diameter Gravity Sewer System.	144,800	2,500	2	Recirculating intermittent sand filters with septic tanks.	195,500	8,300					
						3	Lagoon treatment, spray irrigation.	394,300	6,600					
Campbell Hill +	350 P.E. 350,000 gpd		Construction of access road to treatment plant site.	15,000		1	Abandon existing facility and build new mechanical plant.	145,300	8,200					
						2	Modify existing lagoon into 3-cell aerated lagoon with sand filter, disinfection.	129,900	5,300					
						3 *	Utilize existing lagoon, build an additional 2-cell lagoon, sand filter, disinfection.	140,100	4,900					
						4	Provide disinfection & land application.	-	-					
Colp +	318 P.E. 31,800 gpd					1 *	Modify existing facility, mechanical aeration and recirculation, sand filter.	131,300	2,000					
						2	Utilize existing lagoon, additional retention pond for winter effluent, sand filter.	128,000	4,000					

Table 2 (continued)

			Collection System	Cost $			Treatment System	Cost $		On Site Disposal		Cost $		
FPA	Design P.E.	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	# of System
Cutler +	650 P.E.					1	Abandon existing facilities and build mechanical plant.	251,100	7,500					
						2 *	Modify existing lagoon into 3-cell aerated lagoon with sand filter disinfection.	145,500	7,100					
						3	Utilize existing lagoon, build additional 2-cells with sand filter and disinfection.	181,200	6,100					
Eddyville	171	1 *	Conventional Gravity Sewer System	190,500		1 *	3-cell lagoons.	35,050	2,500	1	Septic tank-sand filter.	150,000		66
						2	Package plant.	94,500	4,400					
						3	Overland Flow treatment.	26,500	2,000					
Equality	930	1 * 2	Gravity Sewer System. Step/pressure collection system.	976,100 809,050	5,000 24,466	1	Contact stabilization plant.	252,500	16,500	1	Mound System	1,361,900	18,000	297
						2 *	Non-aerated 3-cell lagoons.	231,000	11,500					
						3	Aerated 3-cell lagoons with sand filter.	260,200	15,000					
						4	Land treatment (spray irrigation).	516,650	12,500					
						5	Non-aerated 3-cell lagoon for STEP system.	181,900	10,800					
Golconda +	1,000 P.E.					1 *	Upgrading existing facilities.	141,000	18,700					

Table 2 (continued)

FPA	Design P.E.	Collection System Alt. #	Collection System Type	Cost $ Capital	Cost $ O & M	Treatment System Alt. #	Treatment System Type	Cost $ Capital	Cost $ O & M	On Site Disposal Alt. #	On Site Disposal Type	Cost $ Capital	Cost $ O & M	# of System
Gorham +	750 (existing)					1 *	Upgrading by lagoon line, sand filter and chlorination.	115,000	3,200					
Grand Tower +	700	1 *	Sewer Extension	225,500		1	Abandon existing facility, build mechanical plan, discharge into Mississippi.	253,500	9,300	1	Mound System	3,500	120	25
						2	Abandon existing facility, build mechanical plant, discharge Big Muddy Trib.	214,800	9,600	2	Septic Service (holding tank contract)	1,000	2,080	25
						3	Modify existing lagoon into 3-cell add. disinfection, discharge into Mississippi.	197,800	5,200	3	Municipal Septic Tank System	24,000	13,000	-
						4 *	Modify existing lagoon into 3-cell add. disinfection, discharge into Big Muddy Trib.	159,000	4,700					
						5	Disinfection and land application.	-	-					
Manaford	317	1 *	Sewer System	362,600		1 *	3-cell lagoon with sand filter.	178,500	6,500	1	Mound System	395,500	13,560	113
						2	Package Plant.	291,900	8,800	2	Septic Tank-Pumping	-	117,520	-
Hamletsburg	86	1	Conventional Collection System.	63,200	100	1	Stabilization Ponds, sand filter.	86,600	3,400	1 *	"Cluster" mound system	112,000	1,200	24
		2 *	Small diameter gravity sewer system.	23,600	700	2	Recirculating intermittent sand filter with septic tank.	73,500	4,400					
						3	Lagoon treatment, spray irrigation	122,000	3,300					

Table 2 (continued)

		Collection System		Cost $			Treatment System	Cost $		On Site Disposal		Cost $		
FPA	Design P.E.	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	Alt. #	Type	Capital	O & M	# of System
Junction	216	1	Small diameter sewer system	190,000	3,500	1 *	Waste Stabilization pond system.	173,000	5,000	1	Recirculating sand filter, septic tank.	335,000	7,000	90
		2 *	Conventional gravity sewer system	204,000	2,000	2	Package Plant.	203,000	8,000					
		3	Grinder pump/pressure sewers	194,000	4,000	3	Land treatment (spray irrigation)	131,000	10,000					
		4	STEP/Pressure sewer system	166,000	4,000									
Macedonia	95	1	Gravity sewer system	192,900	3,400	1	3-cell aerated lagoon with submerged sand filters.	88,875	10,400	1*	Septic tank service	-	840	32
						2	3-cell non-aerated lagoon with submerged sand filters.	105,200	9,400					
						3	Lagoon with land application.	97,500	9,600					
Makanda	400	1	Small diameter sewer system	267,500	3,300	1 *	Waste stabilization pond system.	262,000	3,000	1	Recirculating sand filters, septic tanks.	420,000	6,700	80
		2 *	Conventional sewer system	258,000	2,000	2	Package plant (contact stabilized filter).	230,000	8,500					
		3	Pressure sewer system with Grinder Pump	174,600	4,000	3	Land application.	210,000	10,500					
		4	Septic tank effluent pump (STEP)	205,000	4,000									
Murphysboro + (Harrison area)	13,600 2,000	1 *	Sewer system in Harrison area and pumped to Murphysboro	1,470,700	20,000	1 *	Treated at Murphysboro, cost of treatment charged by Murphysboro.	-	15,000	1	Municipal septic tank service.	-	19,000	380
		2	Sewer system for Harrison			2	Construct lagoons & sewer system in Harrison area.	1,635,300	36,700	2	Mound system	1,330,000	45,600	380

Table 2 (continued)

FPA	Design P.E.	Alt. #	Collection System	Cost $		Alt. #	Treatment System	Cost $		On Site Disposal		Cost $		# of System
			Type	Capital	O & M		Type	Capital	O & M	Alt. #	Type	Capital	O & M	
Nason	226	1 *	Conventional gravity sewer system.	503,698		1	Package plant, land application	238,680	4,683	1	Septic tank system	189,000	2,100	100
						2	Single lagoon, holding tank, land application.	245,399	2,493					
						3	Package Plant with tertiary filters.	111,000	7,982					
						4	Septic tank, intermittent filters.	150,370	3,622					
						5 *	2-cell lagoon, submerged sand filters.	79,600	3,242					
Omaha	340	1	Small diameter sewer system	368,000	4,900	1 *	Waste stabilization ponds systems	253,000	3,000	1	Recirculating sand filters with septic tank	631,000	15,000	175
		2 *	Conventional sewer system (8"0)	407,000	2,000	2	Package plant (contact stabilization & filtration).	229,000	8,000					
		3	Pressure sewer with Grinder Pump	344,000	5,000	3	Land Application	199,000	10,000					
		4	Septic tank effluent pump (STEP)	285,000	7,900									
Orient (included in W. Frankfort FPA)	552	1	Conventional sewer system	669,800	-									
		2 *	Conventional sewer system with pumping facility to W. Frankfort system	823,000	42,042	1	3-cell lagoon, disinfection	230,600	14,282	1	Sand filter, septic tank, pump, chlorination	521,400	116,130	237
Pittsburg	520	1	Small diameter gravity system	512,000	6,000	1 *	Waste stabilization pond system.	289,000	4,000	1	Recirculating sand filters.	747,000	17,500	210
		2 *	Conventional gravity sewer system (8"0)	607,000	2,500	2	Package plant (contact stabilization unit with tertiary filtration)	232,000	8,000					
		3	Grinder pump sewer system (Pressure Sewer)	429,000	8,000									
		4	Septic tank effluent pump sewer system (pressure)	343,000	9,000	3	Land application (spray irrigation)	199,000	12,000					

Table 2 (continued)

FPA	Design P.E.	Alt. #	Collection System	Cost $		Alt. #	Treatment System	Cost $		On Site Disposal		Cost $		# of System
			Type	Capital	O & M		Type	Capital	O & M	Alt. #	Type	Capital	O & M	
Ridgway +	1	1	No inflow control	-0-	-									
		2	Partial sewer rehabilitation	60,380	-	1	Storage lagoon, total treatment	693,500	20,590					
		3 *	Total sewer rehabilitation	204,760	-	2	Equalization lagoon & upgrading	483,400	17,870					
		4	Total sewer rehabilitation	204,760	-	3 *	Upgrading existing facilities	344,600	16,060					
						4	Land application	383,500	15,070					
Stonefort	450	1	Conventional gravity sewer system	418,600	-	1	Land applicagion	142,100	15,750	1	Septic tank cleaning service	-	6,000	161
						2	Package plant	206,800	20,500					
						3	Package plant with tertiary treatment	273,300	20,500					
						4	3-cell aerated lagoons	127,200	15,250					
						5	3-cell non-aerated lagoons	110,660	11,000					
Vergennes	365	1 *	Conventional sewer system	293,179	-	1 *	3-cell lagoon, sand filters	107,300	6,720	1	Septic tank cleaning service	-	7,000	140
						2	Parallel package plants	138,500	8,580					
W. Frankfort +	10,056	1 *	W. Frankfort sewer extension rehabilitation	660,160	-	1 *	Upgrading treatment plant at W. Frankfort (centralized system)	611,500	166,183					
Orient	552	1	Orient Sewer System	669,800	-	1	3-cell lagoon, disinfection	230,600	14,282	1	Sand filter, chlorination, pump	521,400	116,130	237
		2 *	Pump to W. Frankfort	823,000	42,042									
Pershing	295	1	Pershing sewer system	432,000	-	1	3-cell lagoon, sand filter, chlorination	149,300	13,301	1	Sand filter, chlorination, pump	253,000	56,350	115
		2 *	Pump to W. Frankfort	573,900	27,480									
37 South Hwy.	385	1	Highway 37 South sewer system	671,900	-	1	3-cell lagoon, sand filter, chlorination	195,200	12,617	1	Sand filter, chlorination, pump	847,000	188,650	385
		2 *	Pump to W. Frankfort	679,500	33,507									

* Proposed System for the Municipality

+ Municipality has sewer system

Table 3
RECOMMENDED ALTERNATIVE OF FACILITIES PLANNING (201) STUDIES

FPA Communities	Design Population	No. of Users	Cost Effective Recommended Systems	Total Cost	Annual O & M
Bush (included in Hurst FPA)	466		Sewer system sewage pump to Hurst Plant	69,400	3,900
Christohper (included in Buckner, North City)	4,240		New regionalized plant, inflow removal, activated sludge (only treatment plant cost), BRD, tertiary filters and chlorination	2,112,055	49,932
Buckner	540	200	Sewer system, sewage transport to Christopher	1,062,338	16,300
North City	400	160	Sewer System, sewage transport to Christopher	508,235	12,755
Valier	800		Upgrading existing facility by adding intermittent sand filter	129,277	7,150
Creal Springs	1,000	275	Two additional waste stabilization ponds	132,000	4,000
Eldorado	6,675		Regionalized plant with activated sludge, BRD, rapid sand filter, chlorination, sludge drying bed, inflow removal	2,835,634	75,953
Elizabethtown	600	192	Upgrading existing facility, package plant	227,392	7,529

Table 3 (continued)

FPA Communities	Design Population	No. of Users	Cost Effective Recommended Systems	Total Cost	Annual O & M
Elkville	1,400		Regionalized treatment plant including Dowell, aerated lagoons, algae removal	360,000	40,000
Dowell (included Elkville)	450		Construction of sewer system, sewage will pump to Elkville	930,000	
Freeman Spur	450	175	Sewer system, package nitrification, tertiary filters, sludge drying bed	885,000	17,000
Johnston City (Regional Plant including Whiteash)	6,037		Sewer system in FPA included Whiteash, inflow removal, activated sludge, tertiary filters, chlorination,BRD	3,182,458	82,194
Whiteash (included Fergestown)	963		Sewer system, transport sewer to Johnston City's plant.	331,020	4,930
McLeansboro	3,500		Activated sludge, BRD, tertiary filters, chlorination, sludge drying bed, partial inflow removal from the system	2,276,859	65,208
Sesser	2,800		Sewer extension, inflow removal, intercepter sewer for basin transfer, activated sludge, BRD, & filtration plant in Little Muddy River Watershed	2,101,370	61,093

Table 3 (continued)

FPA Communities	Design Population	No. of Users	Cost Effective Recommended Systems	Total Cost	Annual O & M
Shawneetown	3,065 (includes Old Shawneetown)	675	Package contact stabilization plant and sludge drying bed, sewer rehabilitation/replacement	2,025,400	38,800
Old Shawneetown	360	120	Regionalization with Shawneetown, construction of sewer system	303,800	4,300
Waltonville	750	172	Sewer system, settling tank with sand filters & chlorination	561,080	6,500
Willisville	1,200		Land application (irrigation method)	364,000	18,000

Table 4
LOCAL FINANCIAL CAPABILITY

Municipality	Annual Per Capita Income $		Annual Household Median Income		1% of Median Household Income (Proposed Sewer Service Charge)				1974 Assessed Valuation	Remaining G.O. Bonds Capability
					1974		1995			
Franklin Co.	1974 est.	1995 proj.	$ 1974	$ 1995	$ Annual	$ Monthly	$ Annual	$ Monthly	$	$
Benton	3857	4746	8423	10365	84.23	7.00	103.65	8.60	11,389,000	854,175
Buckner	3864	4816	5977	7450	59.77	5.00	74.50	6.20	354,000	24,550
Christopher	3523	4312	7373	9024	73.73	6.10	90.24	7.50	3,484,000	261,300
Ewing	4225	5166	6536	7992	65.36	5.50	79.92	6.70	221,000	16,575
Freeman Spur	3648	4535	6639	8254	66.39	5.50	82.54	6.90	224,000	16,800
Hanaford	3857	4746	8424	10365	84.24	7.00	103.65	8.60	145,000	10,875
North City	3523	4312	6412	7848	64.12	5.30	78.48	6.50	172,000	12,900
Orient	3648	4535	6739	8378	67.39	5.62	83.78	6.98	208,000	15,600
Royalton	3390	4150	7126	8724	71.26	5.94	87.24	7.27	1,059,000	79,425
Sesser	3181	4095	7237	9317	72.37	6.00	93.17	7.80	2,281,000	98,075
Thompsonville	2575	3455	4921	7826	49.21	4.10	78.26	6.50	504,000	37,800
Urbain	3523	4312	3526	4316	35.26	2.90	43.16	3.60	--	--
Valier	3523	4312	6412	7848	64.12	5.30	78.48	6.50	477,000	35,775
West City	3864	4816	6681	8327	66.81	5.60	83.27	6.90	818,000	61,350
West Frankfort	3424	4136	7790	9409	77.90	6.50	94.09	7.80	11,979,000	848,420
Zeigler	3390	4150	6663	8157	66.63	5.55	81.57	6.80	1,861,000	131,575
Gallatin Co.										
Equality	3330	4168	8901	11141	89.01	7.40	111.41	9.30	761,000	56,075
Junction	3608	4463	9645	12371	96.45	8.00	123.71	10.30	219,000	16,425

Table 4 (continued)

Municipality	Annual Per Capita Income $ 1974 est.	Annual Per Capita Income $ 1995 proj.	Annual Household Median Income $ 1974	Annual Household Median Income $ 1995	1% of Median Household Income (Proposed Sewer Service Charge) 1974 $ Annual	1974 $ Monthly	1995 $ Annual	1995 $ Monthly	1974 Assessed Valuation $	Remaining G.O. Bonds Capability $
Gallatin Co.										
New Haven	3242	4093	9308	11751	93.08	7.80	117.51	9.80	490,000	36,750
Old Shawneetown	3353	4215	9627	12102	96.27	8.00	121.02	10.10	907,000	68,025
Omaha	3806	4688	10173	12531	101.73	8.50	125.31	10.40	581,000	28,575
Ridgway	4469	5359	12388	14855	123.88	10.30	148.55	12.40	2,262,000	155,650
Shawneetown	3608	4463	10358	12814	103.58	8.60	128.14	10.70	2,662,000	199,650
Hamilton Co.										
Belle Prairie	2907	3783	6575	8557	65.75	5.50	85.57	7.10	41,000	3,075
Broughton	3119	3965	6784	8624	67.84	5.70	86.24	7.20	321,000	24,075
Dahlgren	3634	4545	8536	10677	85.36	7.10	106.77	8.90	570,000	42,750
Macedonia	3366	4272	7614	9663	76.14	6.40	96.63	8.10	59,891	4,492
McLeansboro	4152	5072	8309	10149	83.09	6.90	101.49	8.50	4,481,000	316,075
Hardin Co.										
Cave-In-Rock	3697	4439	7978	9579	79.78	6.70	95.79	8.00	3,858,000	275,350
Elizabethtown	3337	3903	7201	8423	72.01	6.00	84.23	7.00	1,108,000	83,100
Rosiclare	3977	5520	8582	11912	85.82	7.20	119.12	9.90	3,858,000	289,350
Jackson Co.										
Ava	3567	4465	8283	10368	82.83	6.90	103.68	8.60	957,000	71,775
Campbell Hill	3567	4465	7055	8832	70.55	5.90	88.32	7.40	480,000	36,000
Carbondale	3721	4579							54,883,000	3,130,225
DeSoto	3869	4802	9649	11976	96.49	8.00	119.76	10.00	936,000	70,200
Dowell	3858	4786	7300	9055	73.00	6.10	90.55	7.60	401,000	30,075

Table 4 (continued)

Municipality	Annual Per Capita Income $		Annual Household Median Income		1% of Median Household Income (Proposed Sewer Service Charge)				1974 Assessed Valuation $	Remaining G.O. Bonds Capability $
	1974 est.	1995 proj.	$ 1974	$ 1995	1974 $ Annual	1974 $ Monthly	1995 $ Annual	1995 $ Monthly		
Jackson Co.										
Elkville	3858	4786	9954	12348	99.54	8.30	123.48	10.30	1,085,000	81,375
Gorham	2673	3928	6436	9458	64.36	5.40	94.58	7.90	454,000	30,050
Grand Tower	3509	4209	6337	7602	63.37	5.30	76.02	6.30	1,364,000	102,330
Makanda	3882	5078	5675	7424	56.75	4.70	74.24	6.20	122,000	--
Murphysboro	3982	4848	10616	12924	106.16	8.90	129.24	10.80	19,277,000	1,195,775
Vergennes	3742	4893	7402	9678	74.02	6.20	96.78	8.10	409,000	20,675
Jefferson Co.										
Belle Rive	3722	4603	6011	7434	60.11	5.00	74.34	6.20	275,000	20,625
Bluford	3188	4029	7046	8904	70.46	5.90	89.04	7.40	1,046,000	37,450
Bonnie	3535	4400	7812	8976	78.12	6.50	89.76	7.50	305,000	22,875
Dix	3632	4514	5866	7290	58.66	4.90	72.90	6.10	294,000	22,800
Ina	3535	4400	5709	7106	57.09	4.80	71.06	5.90	331,000	24,825
Mt. Vernon	4132	4934	8078	9646	80.78	6.70	96.46	8.00	45,619,000	3,421,425
Nason	3985	4870	8129	9935	81.29	6.80	99.35	8.30	247,000	18,525
Waltonville	2815	4826	5264	9024	52.64	4.40	90.24	7.50	498,000	37,350
Woodlawn	3083	3950	5503	7051	55.03	4.60	70.51	5.90	339,000	25,425
Perry Co.										
Cutler	3782	4701	9496	11804	94.96	7.90	118.04	9.80	352,000	26,400
DuQuoin	3823	4622	9609	11605	96.09	8.00	116.05	9.70	12,212,000	915,900
Pinckneyville	4237	5174	12609	15398	126.09	10.50	153.98	12.80	6,376,000	415,200
St. Johns	3187	3845	6817	8225	68.17	5.70	82.25	6.90	182,000	13,650
Tamaroa	2978	3585	6924	8336	69.24	5.80	83.36	7.00	724,000	53,300
Willisville	4077	5538	11375	15451	113.75	9.50	154.51	12.90	322,000	24,900

Table 4 (continued)

Municipality	Annual Per Capita Income $		Annual Household Median Income		1% of Median Household Income (Proposed Sewer Service Charge)				1974 Assessed Valuation $	Remaining G.O. Bonds Capability $
	1974 est.	1995 proj.	$ 1974	$ 1995	1974 $ Annual	1974 $ Monthly	1995 $ Annual	1995 $ Monthly		
Pope Co.										
Eddyville	2721	3912	6171	8873	61.71	5.10	88.73	7.40	102,000	7,650
Golconda	3178	4125	6693	8687	66.93	5.60	86.87	7.20	1,131,000	84,825
Hamletsburg	2377	2776	5006	5847	50.06	4.20	58.47	4.90	85,000	6,375
Saline Co.										
Carrier Mills	3576	4522	7867	9948	78.67	6.60	99.48	8.30	2,866,000	214,950
Eldorado	3555	4529	7508	9551	75.08	6.30	95.51	8.00	8,136,000	597,200
Galatia	3981	5036	9109	11522	91.09	7.60	115.22	9.60	1,324,000	99,300
Harrisburg	3898	4895	8919	11200	89.19	7.40	112.00	9.30	22,042,000	1,578,150
Muddy	3898	4895	9604	12061	96.04	8.00	120.61	10.00	247,000	18,525
Raleigh	4732	5887	10410	12952	104.10	8.70	129.52	10.80	373,000	27,975
Stonefort	3724	4815	8193	10593	81.93	6.80	105.93	8.90	423,000	28,725
Williamson Co.										
Bush	2619	3829	5301	7750	53.01	4.40	77.50	6.50	206,000	15,450
Cambria	3331	3829	5945	6834	59.45	4.95	68.34	5.69	811,000	24,825
Carterville	3432	4571	9788	13036	97.88	8.20	130.36	10.90	5,772,000	416,900
Colp	2823	3829	7324	9934	73.24	6.10	99.34	8.28	201,000	15,075
Crainville	3555	4571	5887	7570	58.87	4.90	75.70	6.30	1,170,000	54,750
Creal Springs	3561	3571	9173	9199	91.73	7.64	91.99	7.67	713,000	53,475
Energy	4036	4605	12253	13981	122.53	10.20	139.81	11.70	1,475,000	92,625
Herrin	3883	4605	10002	11862	100.02	8.30	118.62	9.90	22,353,000	1,676,475
Hurst	2946	3829	6993	9089	69.93	5.83	90.89	7.57	998,000	74,850
Johnston City	3439	4342	7910	9987	79.10	6.60	99.87	8.30	5,081,000	381,075

Table 4 (continued)

Municipality	Annual Per Capita Income $		Annual Household Median Income		1% of Median Household Income (Proposed Sewer Service Charge)				1974 Assessed Valuation $	Remaining G.O. Bonds Capability $
					1974		1995			
Williamson Co.	1974 est.	1995 proj.	$ 1974	$ 1995	$ Annual	$ Monthly	$ Annual	$ Monthly		
Marion	4202	4844	14303	16489	143.03	11.90	164.89	13.70	31,323,000	1,774,225
Pittsburg	2994	4342	6914	10026	69.14	5.76	100.27	8.36	452,000	33,900
Spillertown	3667	5038	15856	21784	158.56	13.21	217.84	18.15	267,000	20,025
Whiteash	3757	4342	9885	11425	98.85	8.24	114.25	9.52	126,000	9,450

Table 5
1975 MUNICIPAL INDEBTEDNESS

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Ava	--	--	135,000	--	--	--	--
Belle Prairie	--	--	--	--	--	--	--
Belle Rive (1974 Data)	276,000	--	--	108,000	--	--	--
Benton	0	0	1,315,000	0	0	0	0
Bluford	146,000	--	--	280,000	38,000	--	--
Bonnie	108,000	--	--	--	--	--	--
Broughton	45,000	--	--	--	--	--	--
Buckner (1974 Data)	90,000	0	0	0	1,000	0	0
Bush	--	--	--	--	--	--	--
Cambria	108,000	384,000	--	--	34,000	--	--
Campbell Hill (1974 Data)	--	9,000	68,000	--	--	--	--
Carbondale (1974 Data)	--	--	12,414,000	--	986,000	--	32,334
Carrier Mills	--	--	330,000	--	--	--	--
Carterville	--	--	232,000	--	8,000	--	--
Cave in Rock	80,000	--	--	12,000	--	--	--
Christopher	0	210,000	0	0	0	0	0
Colp	--	--	231,000	--	--	--	--
Crainville	--	--	475,000	--	31,000	--	--

Table 5 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Creal Springs	9,000	182,000	--	200,000	--	--	--
Cutler (1974 Data)	--	--	84,000	--	--	--	--
Dahlgren	245,000	--	--	135,000	--	--	--
DeSoto (1974 Data)	96,000	162,000	--	--	--	--	--
Dix	--	--	--	--	--	--	--
Dowell	115,000	--	--	--	--	--	1,500
DuQuoin (1974 Data)	--	--	1,130,000	--	--	--	--
Eddyville	--	--	--	--	--	--	--
Eldorado	--	320,000	--	11,000	--	--	--
Elizabethtown	--	--	51,000	--	--	--	--
Elkville	--	--	--	--	--	--	--
Energy	--	--	--	--	--	--	--
Equality	132,000	--	--	10,050	--	--	--
Ewing	--	--	--	--	--	--	--
Freeman Spur	90,000	--	--	--	--	--	--
Galatia	730,000	--	--	2,000	--	--	--
Golconda	--	--	272,000	--	--	--	--
Gorham	65,000	96,000	--	--	--	--	--
Grand Tower	61,000	156,000	--	125,000	--	--	--
Hamletsburg	--	--	--	--	--	--	--
Hanaford	--	--	--	--	--	--	--
Harrisburg	504,000	725,000	--	74,986	--	--	--
Herrin	599,000	70,000	--	889,000	--	--	--
Hurst (1974 Data)	--	--	330,000	--	--	--	--

Table 5 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Ina	--	--	--	--	--	--	--
Johnston City	--	215,000	--	--	--	--	--
Junction	--	--	--	--	--	--	--
Macedonia	--	--	--	--	--	--	--
Makanda	--	--	--	--	--	--	--
Marion	1,003,000	337,000	--	--	555,000	--	--
McLeansboro	--	--	87,000	490,000	--	--	--
Mt. Vernon	3,470,000	810,000	--	--	--	61,250	227,995
Muddy	--	--	--	--	--	--	--
Murphysboro	--	--	2,655,000	--	230,000	--	--
Nason	--	--	--	--	--	--	--
New Haven	82,000	--	--	--	--	--	--
North City	--	--	--	--	--	--	--
Old Shawneetown	48,000	--	--	--	--	--	--
Omaha	57,000	--	--	14,000	--	--	--
Orient	18,000	0	0	0	0	0	0
Pinckneyville	260,000	745,000	--	310,000	59,000	--	--
Pittsburg	372,000	--	--	105,000	--	--	--
Raleigh	--	--	--	--	--	--	--
Ridgway	--	--	41,000	--	7,000	--	--
Rosiclare	--	--	61,000	--	--	--	--
Royalton	--	--	--	--	--	--	--
Sesser	20,000	50,000	0	0	67,000	0	0
Shawneetown	190,000	--	--	260,000	--	--	--

Table 5 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Spillertown	--	--	--	--	--	--	--
St. Johns	--	--	--	--	--	--	--
Stonefort (1974 Data)	73,000	--	--	--	3,000	--	--
Tamaroa (1974 Data)	162,000	--	--	--	--	--	38,563
Thompsonville	0	242,000	75,000	0	0	0	0
Valier	0	0	192,000	0	0	0	0
Vergennes	57,000	--	--	--	9,000	--	--
Waltonville	--	--	--	--	--	--	--
West City (1974 Data)	0	0	0	0	0	0	0
West Frankfort	48,000	679,000	0	10,000	40,000	0	0
Whiteash	--	--	--	--	--	--	--
Willisville	--	--	154,000	--	--	--	--
Woodlawn	142,000	--	--	--	--	--	--
Zeigler (1974 Data)	70,000	179,000	0	0	8,000	0	19,250

Source: Municipal Finance Data, unpublished State of Illinois, Comptrollers Office, (1976)

Table 6
1975 MUNICIPAL DEBTS RETIRED

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Ava	--	--	3,000	--	--	--	--
Belle Prairie	--	--	--	--	--	--	--
Belle Rive (1974 Data)	3,000	--	--	2,000	--	--	--
Benton	--	--	34,000	--	--	--	--
Bluford	2,000	--	--	5,000	3,000	--	--
Bonnie	1,000	--	--	--	--	--	--
Broughton (1974 Data)	1,000	--	--	--	--	--	--
Buckner (1974 Data)	1,000	--	--	--	1,000	--	--
Bush	--	--	--	--	--	--	--
Cambria	6,000	--	--	--	2,000	--	--
Campbell Hill (1974 Data)	--	1,000	1,000	--	--	--	--
Carbondale (1974 Data)	--	--	157,000	--	134,000	460	41,597
Carrier Mills (1974 Data)	--	--	5,000	--	--	--	--
Carterville	--	--	17,000	--	8,000	--	--
Cave in Rock (1974 Data)	2,000	--	--	--	2,000	--	--
Christopher	--	8,000	--	--	--	--	--
Colp	--	--	3,000	--	--	--	--
Crainville	--	--	5,000	--	2,000	--	--

Table 6 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Creal Springs	3,000	3,000	--	--	--	--	--
Cutler (1974 Data)	--	--	2,000	--	--	--	--
Dahlgren (1974 Data)	--	--	--	5,000	--	--	--
DeSoto (1974 Data)	5,000	2,000	--	--	--	--	--
Dix	--	--	--	--	--	--	--
Dowell	4,000	--	--	--	--	--	--
DuQuoin (1974 Data)	--	--	410,000	--	--	--	29,860
Eddyville	--	--	--	--	--	--	--
Eldorado (1974 Data)	--	5,000	--	--	2,000	--	--
Elizabethtown (1974 Data)	--	--	2,000	--	--	--	--
Elkville	--	--	--	--	--	--	--
Energy (1974 Data)	--	--	1,000	--	2,000	--	--
Equality	5,000	--	--	--	--	--	8,294
Ewing	--	--	--	--	--	--	--
Freeman Spur	3,000	--	--	--	--	--	--
Galatia (1974 Data)	--	--	--	--	1,000	--	2,500
Golconda (1974 Data)	--	--	8,000	--	--	--	--
Gorham	1,000	1,000	--	--	--	--	--

Table 6 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Grand Tower	3,000	2,000	--	5,000	--	--	--
Hamletsburg	--	--	--	--	--	--	--
Hanaford	--	--	--	--	--	--	--
Harrisburg	9,000	15,000	--	--	5,000	--	14,015
Herrin	42,000	14,000	--	--	20,000	--	--
Hurst	--	--	--	--	--	--	--
Ina	--	--	--	--	--	--	--
Johnston City	--	--	--	--	--	--	--
Junction	--	--	--	--	--	--	--
Macedonia	--	--	--	--	--	--	--
Makanda	--	--	--	--	--	--	--
Marion	--	--	--	--	--	--	--
McLeansboro (1974 Data)	--	--	15,000	20,000	5,000	--	--
Mt. Vernon	50,000	58,000	--	--	--	44,000	38,497
Muddy	--	--	--	--	--	--	--
Murphysboro	--	--	--	--	20,000	--	--
Nason	--	--	--	--	--	--	--
New Haven	2,000	--	--	--	--	--	--
North City	--	--	--	--	--	--	--
Old Shawneetown (1974 Data)	1,000	--	--	--	--	--	--
Omaha	2,000	--	--	--	1,000	--	--
Orient	3,500	--	--	--	--	--	--
Pinckneyville	10,000	10,000	--	20,000	4,000	--	--
Pittsburg	4,000	--	--	5,000	--	--	--

Table 6 Continued

Municipality	Water	Sewer	Water & Sewer	Other	General Obligation Bonds	Tax Anticipation Warrants	Contractual Commitments
Raleigh	--	--	--	--	--	--	--
Ridgway	--	--	6,000	--	7,000	--	--
Rosiclare (1974 Data)	--	--	7,000	--	--	--	--
Royalton	--	--	--	--	--	--	--
Sesser	5,000	6,000	--	--	6,000	--	--
Shawneetown	3,000	--	--	--	--	--	--
Spillertown	--	--	--	--	--	--	--
St. Johns	--	--	--	--	--	--	--
Stonefort (1974 Data)	2,000	--	--	--	3,000	--	--
Tamaroa (1974 Data)	5,000	--	--	--	--	--	3,637
Thompsonville	--	--	2,000	--	--	--	--
Valier	--	--	200	--	--	--	--
Vergennes	1,000	--	--	--	1,000	--	--
Waltonville	--	--	--	--	--	--	--
West City (1974 Data)	--	--	--	--	--	--	--
West Frankfort	4,000	15,000	--	7,000	10,000	--	--
Whiteash	--	--	--	--	--	--	--
Willisville	--	--	3,000	--	--	--	--
Woodlawn	3,000	--	--	--	--	--	--
Zeigler (1974 Data)	10,000	3,000	--	--	4,000	--	8,500

Source: Municipal Finance Data, unpublished State of Illinois, Comptrollers Office, (1976)

Table 7

USER'S CHARGES BASED ON LOCAL FINANCIAL ARRANGEMENT

(MNA's Municipalities)

				Financial Arrangements as Proposed by the Consulting Engineers			Uniform Estimated Alternate User's Charges $/Month/Household	
Municipality	$ EPA Grant of 75% Allowable Cost	$ Community's Share	$ Annual Cost O & M	Extra Grant	Loan	User's Charges $ per month	Loan @ 7 1/2% rate for 30 yrs. with EPA Grant	Loan @ 5% rate for 40 yrs. with EPA Grant
Ava	102,600	39,200	6,400	-0-	7.5%/30	+.35/1000 G.	+ 2.77	+ 2.48
Belle Prairie	72,700	24,300	1,000	-0-	7.0%/25	18.0	12.74	10.07
Belle Rive	561,281	210,000	3,500	-0-	5.0%/40	14.62	17.73	13.12
Broughton	253,650	95,550	9,300	-0-	7.0%/25	18.0	14.49	12.39
Campbell Hill	111,825	43,275	4,900	-0-	7.5%/30	+.70/1000 G.	+ 4.99	+ 4.33
Colp	98,475	32,825	2,000	-0-	7.5%/30	+.47/1000 G.	+ 3.94	+ 3.23
Cutler	109,125	36,375	7,100	-0-	7.5%/30	+.55/1000 G.	+ 4.10	+ 3.71
Eddyville	224,400	74,800	2,500	-0-	7.0%/20	12.26/Conn.	11.15	8.66
Equality	905,325	301,775	16,500	-0-	5.0%/40	8.23	11.23	8.23
Golconda	102,150	38,850	15,000	-0-	7.0%/20	4.45	4.35	4.11
Gorham	86,250	28,750	3,200	-0-	7.5%/30	+.45/1000 G.	+ 3.20	+ 2.76
Grand Tower	119,250	39,750	4,700	-0-	7.5%/30	+.25/1000 G.	+ 2.37	+ 2.06
Hamletsburg	84,000	28,000	1,200	-0-	7.0%/25	18.3	12.40	9.83
Hanaford	402,075	139,025	6,500	-0-	7.5%/30	13.17/Conn.	13.17	10.77
Junction	286,500	104,300	5,000	43,150	5.0%/40	7.0/+200 tapon	12.81	10.26
Macedonia	-	-	840	-0-	--	1.25	--	--
Makanda	394,500	144,500	5,000	64,250	5.0%/40	9.20/Conn. +200 tapon	18.0	14.00
Murphysboro	1,470,700	367,675	35,000		7.5%/30	8.63/Conn. +250 tapon	10.40	8.87

Table 7 (continued)

				Proposed Financial Arrangement			Estimated Alternate User's Charges $/Month/Household	
Municipality	$ EPA Grant of 75% Allowable Cost	$ Community's Share	$ Annual Cost O & M	Extra Grant	Loan	User's Charges $ per month	Loan @ 7 1/2% rate for 30 yrs. with EPA Grant	Loan @ 5% rate for 40 yrs. with EPA Grant
N. Rend Lake (Nason)	519,284	220,000	3,242	-0-	5.0%/40	19.89	22.78	16.73
Omaha	498,750	191,250	5,000	78,125	5.0%/40	4.60/Conn. +200 tapon	10.09	7.69
Orient	617,250	205,750	15,900		5.0%/40	9.81/Conn.	11.72	9.81
Pittsburg	681,000	247,000	6,500	107,750	5.0%/40	5.12/Conn. +150 tapon	10.88	8.29
Ridgway	409,020	140,340	16,060	-0-	8.0%/30	+ 2.22	+ 4.85	+ 4.21
Stonefort	-	-	6,000	--	--	3.11/Conn.	--	--
Vergennes	404,261	134,754	6,720	-0-	--	6.30/3000 G. +250 tapon	10.79	8.67
W. Frankfort	1,069,545	356,515	231,278		5.0%/40	5.90	6.12	5.90

Note: GERP&DC and SERP&DC's 1977 Housing Survey figures were used to estimate the number of waste service users where this number was not available from the consultant reports.

Table 8

USER'S CHARGES BASED ON LOCAL FINANCIAL ARRANGEMENT

(201 MUNICIPALITIES)

				Financial Arrangements as Proposed by the Consulting Engineers		Estimated Alternate User's Charges $/Month/Household With EPA Grant	
FPA	EPA Grant $	Community's Share	Annual O & M Cost $	Type of Finance	User's Charges $/month/ household	Loan @ 7.5% rate for 30 yrs.	Loan @ 5% rate for 40 yrs.
Bush (Hurst FPA)	52,050	17,350	3,900	--	--	2.94	2.69
Christopher	1,584,041	528,014	49,932	FmHA Loan	6.24	6.66	6.24
Buckner	796,753	265,585	16,300	FmHA Loan	13.33	16.16	13.33
North City	381,176	127,059	12,755	FmHA Loan	10.75	12.25	10.75
Valier	96,958	32,319	7,150	--	--	+ 3.43	+ 3.20
Creal Springs	99,000	33,000	4,000	R.B. @ 6%/20	7.10	+ 2.06	+ 1.79
Eldorado	2,126,725	708,909	75,953	--	--	6.06	+ 5.22
Elizabethtown	169,044	58,348	7,529	R.B. @ 5%/25	6.32	+ 5.41	+ 4.74
Elkville	270,000	90,000	30,000	--	--	10.63	7.96
Dowell	637,500	292,500	10,000	FmHA Grant/Loan	7.78 150 tapon	15.33	11.93
Freeman Spur	659,250	225,750	17,000	FmHA Loan	14.24	17.20	14.24
Johnston City	2,386,843	795,615	82,194	--	--	+ 7.74	+ 6.65
Whiteash	248,265	82,755	4,930	--	--	14.42	11.78
McLeansboro	1,707,645	569,214	65,208	--	--	+ 6.24	+ 5.42
Sesser	1,541,059	560,311	61,093	--	--	10.36	9.03

Table 8 (continued)

FPA	EPA Grant $	Community's Share	Annual O & M Cost $	Proposed Finance: Type of Finance	Proposed Finance: User's Charges $/Month/ Household	Estimated Alternate User's Charges $/Month/Household With EPA Grant: Loan @ 7.5% rate for 30 yrs.	Estimated Alternate User's Charges $/Month/Household With EPA Grant: Loan @ 5% rate for 40 yrs.
Shawneetown	1,451,400	574,000	38,800	R.B. @ 7-5%	9.80	+ 10.79	+ 8.92
Old Shawneetown	227,850	75,950	4,300	--	8.30 (treatment)	15.75	14.36
Waltonville	279,946	281,134	6,500	R.B. 5%/40	11.90	14.68	11.90
Willisville	273,000	91,000	18,000	--	--	+ 8.33	+ 7.56

Note: GERP&DC and SERP&DC's 1977 Housing Survey figures were used to estimate the number of waste service users where this number was not available from the consultant reports.

R.B. = Revenue Bond

Table 9
PARAMETER SCORING

	5	4	3	2	1		
	Receiving Stream 7-days, 10 year low flow of Lake	Improved Management Capabilities	Adequacy of Existing Facilities	Population Growth Rate	Facilities Required	Total Score	Priority Rank
Ava	10	10	15	45	26	107	19
Belle Prairie City	10	10	10	1	4	35	80
Belle Rive	10	10	15	11	25	71	55
Benton	5	10	10	48	0	73	51
Bluford	10	10	10	62	0	92	32
Bonnie	10	10	15	54	39	128	11
Broughton	10	10	15	45	23	103	22
Buckner	10	0	15	4	42	81	42
Bush	0	0	15	15	30	60	65
Cambria	10	0	5	56	0	71	55
Campbell Hill	10	10	10	52	10	92	32
Carbondale	10	10	5	66	0	91	34
Carrier Mills	10	10	15	40	19	94	27
Carterville	10	10	15	57	58	150	2
Cave-In-Rock	0	10	15	42	47	114	17
Christopher	10	10	10	31	0	61	64
Colp	10	10	10	38	0	68	61
Crainville	10	0	10	52	0	72	54
Creal Springs	10	10	15	23	8	66	63
Cutler	10	10	15	52	15	102	23
Dahlgren	10	10	15	55	54	144	5
DeSoto	10	10	10	63	27	124	15
Dix	10	10	5	18	0	43	75
Dowell	10	0	15	17	37	79	45
DuQuoin	10	10	10	31	12	73	51
Eddyville	10	10	15	47	11	93	30
Eldorado	10	10	15	46	59	140	6
Elizabethtown	10	10	10	26	0	56	69
Elkville	10	10	20	22	9	71	55
Energy	10	0	15	58	49	132	9
Equality	5	10	15	59	55	149	3
Ewing	10	10	10	2	16	48	72
Freeman Spur	10	10	15	8	32	75	47
Galatia	10	10	5	35	0	60	65
Golconda	0	10	10	42	5	67	62
Gorham	10	10	15	20	0	55	70

Table 9 (continued)

	5	4	3	2	1		
	Receiving Stream 7-days, 10 year low flow of Lake	Improved Management Capabilities	Adequacy of Existing Facilities	Population Growth Rate	Facilities Required	Total	Priority Rank
Grand Tower	10	10	10	6	0	36	79
Hamletsburg	0	10	15	19	6	50	71
Hanaford	10	10	10	34	24	88	36
Harrisburg	10	10	5	36	33	94	27
Herrin	5	10	20	29	17	81	42
Hurst	0	10	15	38	20	83	40
Ina	10	10	10	48	36	114	17
Johnston City	5	10	15	28	1	59	67
Junction	10	10	10	25	14	69	59
Macedonia	10	10	15	32	7	74	49
Makanda	10	10	10	41	13	84	38
Marion	5	10	15	53	0	83	40
McLeansboro	10	10	20	35	31	106	20
Mt. Vernon	5	10	15	58	0	137	7
Muddy	10	0	5	60	0	75	77
Murphysboro	0	10	15	55	57	137	7
Nason City	10	10	10	48	18	96	25
New Haven	0	10	15	7	48	80	44
North City	10	0	15	24	29	78	46
Old Shawneetown	10	0	15	30	30	85	37
Omaha	10	10	15	51	40	126	14
Orient	5	0	15	5	45	70	58
Pickneyville	5	10	10	43	34	102	23
Pittsburg	10	10	15	12	46	93	30
Raleigh	10	10	15	49	44	128	11
Ridgway	10	10	15	61	53	149	3
Rosiclare	10	10	10	14	0	44	74
Royalton	10	10	10	13	0	43	75
St. Johns	10	0	15	37	22	84	38
Sesser	10	10	15	33	38	106	20
Shawneetown	10	10	20	27	50	117	16
Spillertown	10	0	15	65	41	131	10
Stonefort	10	10	15	50	43	128	11
Tamaroa	10	10	10	39	0	69	59
Thompsonville	10	10	10	16	2	48	72
Urbain	10	0	10	9	3	32	81

Table 9 (continued)

	5	4	3	2	1		
	Receiving Stream 7-days, 10 year low flow of Lake	Improved Management Capabilities	Adequacy of Existing Facilities	Population Growth Rate	Facilities Required	Total	Priority Rank
Valier	10	0	10	22	0	42	77
Vergennes	10	10	15	31	28	94	27
Waltonville	10	10	15	21	35	91	34
West City	5	0	15	3	51	74	49
West Frankfort	5	10	10	48	0	73	51
Whiteash	10	0	15	50	21	96	25
Willisville	10	10	15	68	52	155	1
Woodlawn	10	10	10	29	0	59	67
Zeigler	10	10	10	10	0	40	78

Table 10
PRIORITY RANKING

Priority Rank	Total Priority Number	Community
1	155	Willisville
2	150	Carterville
3	149	Ridgway
3	149	Equality
5	144	Dahlgren
6	140	Eldorado
7	137	Mt. Vernon
7	137	Murphysboro
9	132	Energy
10	131	Spillertown
11	128	Bonnie
11	128	Raleigh
11	128	Stonefort
14	126	Omaha
15	124	DeSoto
16	117	Shawneetown
17	114	Cave-In-Rock
17	114	Ina
19	107	Ava
20	106	McLeansboro
20	106	Sesser
22	103	Broughton
23	102	Cutler
23	102	Pinckneyville
25	96	Nason City
25	96	Whiteash
27	94	Carrier Mills
27	94	Harrisburg
27	94	Vergennes
30	93	Pittsburg
30	93	Eddyville
32	92	Bluford
32	92	Campbell Hill
34	91	Waltonville
34	91	Carbondale
36	88	Hanaford
37	85	Old Shawneetown
38	84	Makanda
38	84	St. Johns
40	83	Hurst
40	83	Marion
42	81	Buckner

Table 10 (continued)

Priority Rank	Total Priority Number	Community
42	81	Herrin
44	80	New Haven
45	79	Dowell
46	78	North City
47	75	Freeman Spur
47	75	Muddy
49	74	Mecedonia
49	74	West City
51	73	Benton
51	73	DuQuoin
51	73	West Frankfort
54	72	Crainville
55	71	Belle Rive
55	71	Cambria
55	71	Elkville
58	70	Orient
59	69	Junction
59	69	Tamaroa
61	68	Colp
62	67	Golconda
63	66	Creal Springs
64	61	Christopher
65	60	Bush
65	60	Galatia
67	59	Johnston City
67	59	Woodlawn
69	56	Elizabethtown
70	55	Gorham
71	50	Hamletsburg
72	48	Thompsonville
72	48	Ewing
74	44	Rosiclare
75	43	Dix
75	43	Royalton
77	42	Valier
78	40	Zeigler
79	36	Grand Tower
80	35	Belle Prairie City
81	32	Urbain

Table 11

CAPITAL SCHEDULING FOR 81 MUNICIPALITIES IN THE SOUTHERN ILLINOIS 208 AREA

1975		1978				1982		1983		1995	No Action
Municipality	Cost	Municipality	Cost	Municipality	Cost	Municipality	Cost	Municipality	Cost		
Bluford	790,000	Dowell	930,000	McLeansboro	2,276,859	Willisville	364,000	Raleigh	738,000		Macedonia
Bonnie	930,676	Equality	1,202,300	Johnston City	3,182,458	Ridgway	549,360	Omaha	690,000		Stonefort
Carbondale	4,407,000	Broughton	349,200	Sesser	2,101,370	Energy	---	Nason	628,956		
Cave-In-Rock	715,750	Pittsburg	928,000	Eldorado	2,835,634	DeSoto	323,900*	White Ash	331,020		
Dahlgren	442,000	↑		Benton	1,026,000*	Ava	141,800	Vergennes	539,000		
Ewing	1,801,909			Shawneetown	2,025,400	Cutler	145,500	Eddyville	299,200		
Galatia	626,000	State		Carrier Mills	148,367*	Pinckneyville	463,900*	Hanaford	614,500		
Hurst	356,000	Health		Herrin	3,764,500*	Campbell Hill	155,100	Makanda	539,000		
Ina	941,039	Hazard		Creal Springs	132,000	Muddy	202,100	St. John	---		
Marion	2,990,000	Grant		Christopher	2,112,055	West Frankfort	1,426,060	North City	508,235		
Mt. Vernon	7,059,933			Elkville	360,000	DuQuoin	418,400*	Belle Rive	645,424		
Murphysboro	2,180,000			Spillertown	400,000*	Crainville	---	Orient	823,000		
Tamaroa	850,000			Waltonville	561,080	Cambria	---	Junction	414,000		
Thompsonville	444,900			Harrisburg	1,502,200*	Colp	131,300	Hamletsburg	112,000		
West City	1,080,000			Carterville	851,100*	Golconda	141,000	Belle Prairie	97,000		
Woodlawn	351,357			Buckner	1,062,338	Elizabethtown	227,392	Urbain	---		
				Rosiclare	242,000*	Gorham	115,000				
				Freeman Spur	885,000	Dix-Kell	83,800*				
				Old Shawneetown	303,800	Royalton	276,200*				
				New Haven	141,000*	Valier	129,277				
				Bush	69,400	Zeigler	257,000*				
						Grand Tower	159,000				
Totals	$25,966,564		$3,409,500		$25,982,561		$5,710,089		$6,979,335		
								Capital Required Between (78-95)		$42,081,485	
								Grand Total		$68,048,049	

*IEPA estimated Cost (subject to change).
--- Cost data is not available.

Table 12
MANAGEMENT AGENCIES

Municipalities

Ava *
Belle Prairie City
Belle Rive
Benton *
Bluford *
Bonnie *

Broughton
Buckner
Bush
Cambria *
Campbell Hill *
Carbondale *

Carrier Mills *
Carterville *
Cave-In-Rock *
Christopher *
Colp *
Crainville *

Creal Springs *
Cutler *
Dahlgren *
DeSoto *
Dix *
Dowell *

DuQuoin *
Eddyville
Eldorado *
Elizabethtown *
Elkville *
Energy *

Equality *
Ewing *
Freeman Spur
Galatia *
Golconda
Gorham

Grand Tower *
Hamletsburg
Hanaford
Harrisburg *
Herrin *
Hurst *

Ina *
Johnston City *
Junction
Macedonia
Makanda
Marion *

McLeansboro *
Mt. Vernon *
Muddy *
Murphysboro *
Nason City
New Haven

North City
Old Shawnee town
Omaha
Orient
Pinckneyville *
Pittsburg

Raleigh
Ridgway *
Rosiclare *
Royalton *
St. Johns
Sesser *

Shawneetown *
Spillertown
Stonefort
Tamaroa *
Thompsonville *
Urbain

Valier *
Vergennes
Waltonville
West City
West Frankfort *
Whiteash

Willisville *
Woodlawn *
Zeigler *

Counties

Franklin
Gallatin
Hamilton
Hardin
Jackson

Jefferson
Perry
Pope
Saline
Williamson

Table 12 (continued)

Sanitary Districts

Golconda Sanitary District *
Gorham Sanitary District *

River Conservancy Districts

Bay Creek River Conservancy District
Kinkaid - Reeds Creek River Conservancy District
Lusk Creek Conservancy District
Rend Lake Conservancy District
Saline Valley Conservancy District

Water Districts

Blairsville Water District
Buncombe Water District
Coal Valley Water District
Consolidated Public Water District
Corinth Water District

Crab Orchard Water District
Dale Water District
Devel's Kitchen Water District
Dix - Kell Public Water District
Ferges Water District

Ft. Massac Water District
Gallatin - White Water District
Hardin County Water District No. 1
Highway 37 North Water District
Hill City Water District

Lake Of Egypt Water District *
Lakeside Water District *
Liberty - Ledford Water District
Millstone Water District
Mitchellville Water District

Murdale Water District
Old DuQuoin Public Water District
Opossum Water District
Oraville Water District
Plumfield Water District

Prospect Water District
Raleigh Water District
Rend City Water District
South Highway Water District
Wye Water District

* Management agency actively involved in wastewater collection and/or treatment facilities works.